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# PROJECT MANAGEMENT PLAN

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**Project Title:** Metro Louisville Feasibility Study,  
**Mill Creek, Kentucky, Interim Feasibility Study**

**Project No.:** 112576 (P2)      013386 (AMSCO)

**Authority:** U.S. Senate resolution adopted on 05May87 by the Committee on  
Environmental and Public Works.

**Local Sponsor:** Louisville & Jefferson Co. Metropolitan Sewer District (MSD)

**Location:** Metropolitan Louisville – Jefferson County, KY

## Document History:

VERSION	DATE	DESCRIPTION & LOCATION WITHIN PMP OF REVISION	DATE APPROVED	APPROVED BY
Original PMP	29 June 05	Original (was attached as Appx. A to FCSA)	July 2005	Study Team & Chief, Planning Branch
Revision # 1	1 Aug 06	Misc. adjustments to activities' list (Appx. A) and to individual activities' costs to simplify tracking in P2. Misc. language clarifications throughout. Updates to roster of team & to ITR membership (Table 4.2 and Sec.7). The common prefix "J" was removed from all Activity Names to simplify P2 coding and maintenance.	Aug 2006	Study Team & Chief, Planning Branch

**Revision No. 1: August 1, 2006**

# STATEMENT OF CERTIFICATION

## **Study Team Leaders** **Metropolitan Louisville / Mill Creek, Kentucky, Feasibility Study** **Metropolitan Louisville, Kentucky**

This is to certify that the undersigned have participated in the development of, reviewed, and concur in the scope, structure, and cost estimate for the subject study in the amount of \$1,800,000 based on August 2006 price and salary levels.

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Project Manager  
CELRL-PM-PF

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MSD Project Manager  
MSD

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Chief, Planning Branch, PMP QA reviewer  
CELRL-PM-P

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Economics Leader  
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Beargrass Area Team Leader  
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# TABLE OF CONTENTS

<b>DESCRIPTION</b>	<b>Page</b>
Section 1: Study Overview .....	1
Section 2: Work Breakdown Structure (WBS) .....	7
Section 3: Scope of Studies .....	10
Section 4: Organizational Breakdown Structure (OBS) .....	29
Section 5: Feasibility Study Schedule .....	36
Section 6: Baseline Study Cost Estimate .....	37
Section 7: Study Quality Control .....	39
Section 8: Acronyms .....	48

<b>APPENDICES</b>	(following p. 49)
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- Appendix A – Study Activities, Cost Estimates, and Expenses  
(data combined from Corps Primavera scheduling and CEFMS accounting software)
- Appendix B – Feasibility Cost Share Agreement (2 August 2005)
- Appendix C – Sample ITR and Legal-Review Certification Record

<b>LIST OF TABLES</b>	<b>Page</b>
2-1 Work Breakdown Structure .....	8
4-1 Resources Assignment Matrix (RAM) .....	33
4-2 Team Leaders' List .....	34
7-1 Independent Technical Review Team .....	46
7-2 Review Milestones .....	47

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# STUDY OVERVIEW

## Introduction

The purpose of the Mill Creek Feasibility Study is to investigate the feasibility and the extent of Federal interest in providing improvements that will alleviate flooding and other related water resource problems in the Mill Creek basin. The scope of this work includes investigating the results of the November 1997 “905(b) Analysis” (reconnaissance-phase report) in greater detail and performing a detailed analysis of alternatives, culminating with the identification of one recommended plan that would be subsequently authorized, designed, and constructed. The tasks will include evaluating the current and anticipated water resource problems and needs, developing an array of initial alternatives to address these problems and needs, reducing this list of alternatives to those that appear to be potentially feasible, and analyzing the economic, environmental, and engineering impacts of each competing alternative, culminating in the one recommended plan. This document, the Project Management Plan (PMP), presents the rationale, tasks, schedule, and costs required to perform the feasibility study. The original PMP was developed in June 2005, leading to the signing of a Feasibility Cost Sharing Agreement (FCSA) for the study on August 2, 2005.

## Study Authorization

Authority for the Metropolitan Region of Louisville, Kentucky, Mill Creek Study is contained in a resolution adopted on 5 May 1987 by the Committee on Environment and Public Works of the United States Senate. This resolution reads as follows:

***“RESOLVED BY THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board of Engineers for Rivers and Harbors, created under Section 3 of the Rivers and Harbors Act, approved June 12, 1902, be, and is hereby requested to review the report of the Chief of Engineers of the comprehensive flood control plan for the Ohio and lower Mississippi Rivers, published as Flood Control Committee Document Numbered 1, 75th Congress, and other pertinent reports, with a view to determining the advisability of providing additional improvements for flood control and allied purposes in the Metropolitan region of Louisville, Kentucky, with particular reference to existing and potential flooding problems in the Pond Creek, Mill Creek, Beargrass Creek, and Floyds Fork drainage basins.”***

The above authority provides the Corps broad authority to review water resources issues throughout the metropolitan Louisville area. As a result of this authority, the Corps has received various Congressional appropriations and begun (and/or already completed) work on several

individual interim Feasibility studies, including:

- Pond Creek Interim Feasibility Study, completed in May 1996;
- Beargrass Creek Interim Feasibility Study, completed in 1997.
- Southwest Louisville Flood Damage Reduction Feasibility Study (focusing on drainage issues within the former City of Louisville city-limits, including the Churchill Downs area), still underway; and
- The Mill Creek Feasibility Study (this effort).

The Louisville and Jefferson County Metropolitan Sewer District (MSD) stated in a letter, dated 11 September 1997, that they were interested in cost sharing a feasibility study of the Mill Creek basin with the U.S. Army Corps of Engineers. The signatures by MSD and Corps' executives of the FCSA on August 2, 2005 initiated this most-recent feasibility study, which is well underway as of the date of this PMP revision. This feasibility study will culminate in an interim report (focusing on the Mill Creek basin only) under the broad authority of the Metropolitan Region of Louisville study.

## Study Area Description

The Mill Creek basin lies entirely in Jefferson County, Kentucky, and has a drainage area of approximately 34 square-miles at its juncture with the Ohio River. Less than 10% of this drainage area lies within the boundaries of the former City of Louisville corporate limits, but the entire area lies within the limits of the new Metro Louisville corporate boundaries.

Sometime prior to 1950, the natural 34 square mile basin was effectively cut nearly in half with the construction (by local government agencies) of the Mill Creek Cut-off. The Mill Creek Cut-off provides a shortcut channel for drainage from the upper portions of Mill Creek to flow directly into the Ohio River, thereby reducing water flows in the "lower" Mill Creek (i.e., the Mill Creek generally south of Lower Hunters Trace).

The Sponsor has indicated a preference for concentrating at this time only in the "upper" Mill Creek – now a complete hydrologic basin in itself, with a drainage area of approximately 19 square-miles. The previous 905b Analysis focused only on this area. The upper Mill Creek flows towards the west from its origin (in the Hazelwood Ave. area of Louisville) until it intersects the Ohio River at about Ohio River Mile 616.5. (via the Mill Creek Cut-off). The upper Mill Creek basin (watershed) includes several sub-reaches and major tributaries, including:

- Mill Creek Cutoff
- Big Run Diversion
- Cane Run Ditch
- Boxwood Ditch
- East Branch Boxwood Ditch
- Lynnview Ditch
- Heatherfield Ditch
- City Park Ditch
- Big Run Creek

All of these tributary areas will be considered in the feasibility study.

The study area lies in the southwest portion of Jefferson County, Kentucky, and is protected from flooding from the Ohio River by the Southwest Jefferson County Flood Protection system (primarily consisting of a long levee along the Ohio River). This system was completed in the 1980's. However, this existing Ohio River flood levee system does not protect the Mill Creek basin from interior flooding (due to local storms which exceed flow capacities of the above-listed stream reaches).

## Statement of Problems/Opportunities/Constraints

Flooding in the Mill Creek basin occurred in August of 1992. Out-of-bank flooding caused between \$1 and \$2 million in damage in the eastern section of the Upper Mill Creek study area. Extensive damage was done to the lower level of the Caritas Hospital where computers, telephone lines, and other equipment are located. Automobiles in nearby parking lots were also damaged. The flood of record is the March 1964 flood, when approximately 900 residential properties were damaged.

Based upon several meetings and discussions with MSD, the local sponsor, the study team will concentrate their efforts on the upper portion of the drainage basin. MSD has experienced more problems with flooding in the upper portion of the basin than in the lower half.

Anticipated constraints to this study include lack of available land and potentially dealing with the "1.5 square-mile / 800 cfs" rule. This is a rule which limits the Corps' ability to participate in very small drainage basins where the expected 10-year-storm flow is less than 800 cubic feet per second (cfs).

Another expect constraint is the availability of sufficient Federal funds to match the study team's capability – completion of the study may take longer (and cost more due to inflation) than this PMP anticipates. This Mill Creek interim study was only recently advanced as a priority by the Sponsor, and funds for initiation of the study in late 2005 were largely reprogrammed from other Metropolitan Louisville appropriations (such as the Pond Creek Ecosystem Study). As of the date of PMP Revision #1, no funding for FY07 is expected, although carryover funds from FY06 reprogramming may allow continuation of work through early FY07.

## Without Project Condition/No Action Plan

The Water Resources Council's *Principles and Guidelines* and Corps' regulations require the identification of the Without (WO) Project Condition -- the totality of collective features and conditions (including land use) that would likely come about assuming no future Federal involvement or funding in this project. Forecasts of the future WO condition take into consideration all other

actions, plans, and programs that would be implemented (by anyone) in the future in the study area in the absence of a Corps' project. The WO condition represents an estimate (hypothesis) of what the study area would be like in the future.

The WO condition constitutes the benchmark against which the With-Project (WP) plans are evaluated. All WP plans will be compared to the WO condition. Any differences between the WO condition and the WP plans are measured as an incremental cost or a benefit for the WP plan. Because the WO condition provides a basis of comparison, proper definition and forecast of the future WO condition are critical to the success of the planning process.

For this study, under the Without-Project condition, it is assumed that no additional local or Corps-partnered actions would be undertaken in the future which would measurably affect water-levels along the creek, water quality, or any other measure of the environment in or along the creek. Efforts will be taken during early study efforts (Stage 0) to more precisely define the WO condition, taking into account future growth expectations in the area as well as planned construction by others.

According to the 905b Analysis, under WO conditions, expected annual damages of over \$600,000 will continue to adversely impact the study area. Flood events will remain unchanged and continue to flood a number of structures. Existing facilities in the Mill Creek watershed will continue to be vulnerable to flooding at the same frequency. Based on the damages identified to date and discussions with the Louisville and Jefferson County Metropolitan Sewer District, the WO alternative is not locally acceptable.

## Study Alternatives

The next few paragraphs present a broad description of the work to be performed as part of this feasibility study. The work will be primarily the responsibility of a project team consisting of representatives from the U. S. Army Corps of Engineers, Louisville District, and the local cost-sharing partner, the Louisville and Jefferson County Metropolitan Sewer District (MSD). Work will also be performed by the U.S. Fish and Wildlife Service and coordination will continue with the Kentucky Department of Fish and Wildlife Resources (KDFWR), and other interested parties. Close coordination will occur throughout the study with an Independent Technical Review (ITR) team as listed in Section 7. The ITR team will review all major study products. The team will also coordinate with representatives from the Great Lakes and Ohio River Division (LRD) office in Cincinnati and HQUSACE (Washington) offices to keep them informed during the plan formulation process and to ensure that Federal policy guidelines are met throughout the study. The study team feels that if close coordination occurs and periodic telephone conferences/meetings are held, the feasibility study can be completed in less time than the normal three year or more time frame.

As noted in the 905(b) report, development in the Mill Creek basin has resulted in significant alteration of the land over the past 200 years. After several visits to the study area and discussions with MSD on where key damage areas are located, the study team determined that detention basins were the most practical solution to evaluate during the previous 905(b) Analysis. Several open sites in the study area, which are strategically located in terms of flood damage reduction, were identified.

The study team also utilized information and data on detention basins that was gathered in the Metropolitan Region of Louisville, Kentucky Beargrass Creek Interim Feasibility Study. The Beargrass Creek study focused primarily on detention basins and was near completion when the Mill Creek 905(b) Analysis was done.

Detention basins are structures in which water is detained only during peak flows and then released downstream as soon as conditions permit. Off-channel or side saddle detention basins are constructed such that a portion of the downstream flow is diverted into the basin using a spillway, stored for a period of time, and then released back into the stream by a gravity structure. When the ponding elevation within that detention basin is equal to the elevation of the stream, then weir flow or flow into the basin would cease and all the remaining flow would travel downstream. Seven separate detention basin sites were evaluated in the 905(b) Analysis. In addition to detention basins, one flood damage reduction improvement consists of removing a section of an abandoned earthen levee in order to increase the flow and divert waters over to a storage area.

Throughout the study, formulation and analyses will be accomplished following risk and uncertainty procedures prescribed by Corps planning regulations. Risk and uncertainty calculations are primarily imbedded in the techniques used by the Economics and Hydrology and Hydraulic teams during the study.

## **Plan Formulation Stages**

To categorize and simplify description of work tasks (activities) in this PMP and in Corps' scheduling outputs, the work tasks have been organized into five stages (Stages 0, 1, 2, 3, and 4). These stages are described below.

**Stage 0 (Inventory of Existing Conditions).** Early in the study, existing conditions will be established to determine the quantity, quality, and the extent of water and other related resources in the study area. The existing conditions will be established with respect to environmental, cultural and historical, and economic resources. The study team will coordinate with the appropriate resource agencies to gather current information. The appropriate accounts, described in detail later in this document, include activities for establishing existing conditions. Data gathered will form a current description of existing conditions in the study area and will serve as the baseline for projecting the Without- and With-Project conditions.

During the feasibility study, coordination will continue with MSD, the U.S. Fish and Wildlife Service, Kentucky agencies, and other interested parties.

**Stage 1 (Screening of initial alternatives).** Once the existing problems and opportunities are understood, the first iteration of evaluating solutions will begin. Initial screening efforts in the feasibility phase of study will consider the eight alternatives considered in the previous 905b effort, as well as other structural solutions such as channel improvements, levees, etc. Alternate combinations of types of construction, alignments, and levels of protection will be screened to assure that the plan is eventually identified. Each plan feature will be evaluated separately, and various combinations of improvement features will be considered. In addition to structural alternatives, non-structural alternatives will be investigated during the feasibility phase including restoration of natural

floodplain, ecological values, and watershed storage.

**Stage 2 (Plan Optimization).** Following completion of the initial screening, the field of alternatives will be narrowed and considered in more detail as the study progresses. Alternatives will be evaluated for various levels-of-protection (various flood heights). The alternatives generating the highest net benefits will be retained for Stage 3 evaluation.

**Stage 3 (Detailed Evaluation).** This stage involves the detailed evaluation of those plans which the team (including the sponsor) feels best solves the study area problems. By regulation, this stage must include evaluation of a “National Economic Development” (NED) plan – the alternative which optimizes net benefits. Usually, a secondary or tertiary plan is also evaluated (including a Locally-Preferred Plan) -- comparing trade-offs in certain features, costs, or types of benefits. Stage 3 ends with the distribution of a Draft Interim Feasibility Report.

**Stage 4 (Final Coordination).** This stage includes holding a final public meeting or workshop, collection and response to all public comments on the report, distribution of a final Report, and coordination with Washington-level review groups -- working towards Congressional authorization of the recommended plan.

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# WORK BREAKDOWN STRUCTURE

## Development of Activity Accounts/Codes

The Work Breakdown Structure (WBS) summarizes the relationship between study products and tasks, and organizes the scope of work in a logical manner. For this study, the WBS follows a consistent Code of Accounts (WBS codes) that were established to interface with the Corps of Engineers Financial Management System (CEFMS) and the Corps' Project Management and Information System (P2). CEFMS and P2 are the two primary software systems currently used by the Corps to track project expenditures and the execution of project tasks.

Table 2-1 provides the WBS for this study. The WBS codes were developed from the Corps' Headquarters standard template for Civil Works projects. The codes are linked with the tasks described in the Scope of Studies and the costs summarized in the Feasibility Study Cost Estimate. Effectively, the codes are required to allow the Corps' management systems to identify the study products, tasks, and their costs. The actual utilization of the WBS is probably most evident by simply reviewing **Appendix A** – the list of study Activities, Estimated Costs, and Expenses. This WBS is essentially the organization structure for the Activities List in Appendix A.

**NOTE:** Sections 2 and 3 are interchanged here, compared to the original (June 2005) PMP – this Section 2 material was moved forward since it provides an organizational overview / structure for the scope (tasks) discussed later in Section 3.

## Table 2-1 Work Breakdown Structure

**112576.** (project #) **Metro Lou Mill Creek (project-level)**

**.1 Recon/Sec 905(b) Studies** *ALREADY COMPLETE*

**.1.21 FCSA** *ALREADY COMPLETE*

**.2 Feasibility Studies**

**.22A00 Public Involvement**

Activity Names' Prefix: IE\_\_

**.22C00 Socio / Economics**

Activity Names' Prefix: BA\_\_ - BF\_\_

**.22D00 Cultural Resources**

Activity Names' Prefix: GF\_\_

**.22E00 Environmental**

Activity Names' Prefix: DB\_\_

**.22F00 US Fish & Wildlife Service Work**

Activity Names' Prefix: E\_\_

**.22H00 Real Estate**

Activity Names' Prefix: CA\_\_ or CF\_\_

**.22L00 HTRW Studies**

Activity Names' Prefix: F\_\_

**.22M00 Recreation Studies**

no recreation study activities planned at this time

**.22P00 Engineering**

Activity Names' Prefix: A\_\_ or HA\_\_ (for cost engineering)

.ED Engineering Div. Executive Office

.ED-E Environmental Branch

.ED-D Design Branch Tasks (Executive)

ED-DS Structural Section Tasks

.ED-DM Mechanical & Electrical Section Tasks

.ED-M Mgt Branch Tasks (Executive)

.ED-MC Cost Engineering Section Tasks

.ED-T Civil Branch Tasks (Executive)

.ED-TH Hydrology & Hydraulics Design Sec. Tasks

.ED-TG Geotechnical Section Tasks

.ED-TC Civil Section Tasks

**Note:**

Overall Engineering funding and schedule is maintained at the **.22P** level (header on previous page). This sub-ordinate branch/section organization is provided only to provide branch or section-level schedule/product documentation of the schedule where necessary.

**.22Q00 Project Management**

Activity Names' Prefix: PA\_\_ ( or CN\_\_ for contingency reserve funds)

**.22R00 Plan Formulation**

(Initial Formulation during Stages 0-2)

Activity Names' Prefix: JA\_\_

**.22S00 Feasibility Report**

( Final Formulation during Stages 3-4)

Activity Names' Prefix: KA\_\_ / LC\_\_

**.22W00 Washington-Level Review**

Activity Names' Prefix: M0\_\_

## SCOPE OF STUDIES

The work to be performed consists of a feasibility study per the attached schedules and budgets (**Appendix A**), in order to determine the best solution to the flooding and other water resources problems in the Mill Creek basin located in Jefferson County, Kentucky. The National Economic Development (NED) plan will be identified, as well as any plan preferred by the sponsor, if different. This work includes plan formulation; preparation of an environmental assessment; cost/benefit evaluations; the necessary survey and geotechnical investigations; a hydrologic and hydraulic analysis; design calculations and drawings; preparation of a detailed cost estimate; real estate estimates; project management (team coordination); and coordination with local, state, and Federal agencies as well as with environmental groups, other interest groups, and the public.

### Applicable Statutes, Regulations, & Guidance

Study requirements are as defined and required by the following documents:

ER 5-7-1 Dated 1 March 1991	"Project Management" Department of the Army regulation for the overall management of civil works projects.
ER 200-2-2 Dated 4 March 1988 33 CFR 230	"Procedures for Implementing NEPA" Department of the Army regulation on Environmental Quality.
ER 405-1-12 (Ch. 12) Dated 28 May 1991	"Real Estate Handbook - Local Cooperation" Department of the Army regulation establishing guidelines for real estate activities for local cooperation agreements.
ER 1105-2-100 dated 30 Jun 2004	"Planning Guidance" Department of the Army regulation on Policy and Guidance for the conduct of civil works planning studies.
ER 1165-2-131	"Local Cooperation Agreements for New Starts" Department of the Army regulation for developing and processing local cooperation agreements.

ER 1105-2-101 Dated 1 March 1996	"Risk Analysis Framework for Draft Evaluation of Hydrology/Hydraulics and Economics in Flood Damage Reduction Studies"
EC 1110-2-263	"Civil Works Construction Cost Estimating" Department of the Army circular establishing accounting standards for preparing cost estimates for civil projects.
EC 1110-2-268	"Engineering and Design for Civil Works Projects" Department of the Army circular for engineering level of detail in feasibility reports.
EC 1110-2-538	"Civil Works Project Cost Estimating - Code of Accounts" Department of the Army circular establishing accounting standards for preparing cost estimates for civil projects.
EM 1110-2-1301	"Cost Estimates - Planning and Design Stages"
U.S. Water Resource Council Publication Dated 10 March 1983	<u>Economic and Environmental</u> <u>Principles and Guidelines for Water</u> <u>and Related Land Resources Implementation Studies</u>

More specifically and in compliance with the requirements and guidance provided by EC 1110-2-268 listed above, the feasibility study will:

- Provide sufficient engineering and design to allow for the development of plans and specifications on the recommended plan to begin immediately after approval of the feasibility report and receipt of funds;
- Provide sufficient level of design to establish project features and elements that will form an adequate basis for the project construction schedule and cost estimate;
- Provide adequate level of engineering design to prepare the baseline cost estimate in accord with EC 1110-2-263 listed above; and
- Provide engineering studies and investigations in an engineering appendix to the feasibility report.

(Note: the paragraphs above were moved forward in Section 4 from their location in the original PMP, dated June 2005).

## Cost Sharing

The Louisville and Jefferson County Metropolitan Sewer District (MSD) have agreed to cost share this feasibility study with the U.S. Army Corps of Engineers and will provide both cash and in-kind services as described in this document. The in-kind services shall be performed in accordance with the schedules, spreadsheets, and narrative descriptions included in this Project Management Plan. Acceptance of the in-kind service products will be the responsibility of the Corps of Engineers, Louisville District.

## Primary Feasibility Study Products

### **Interim Feasibility Report**

This product includes all activities leading to the approval of the final Interim Feasibility Report, including an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and/or a Finding of No Significant Impact by the Office of the Chief of Engineers. (The report is called “Interim” since it is only one of several study reports generated under the “Metropolitan Region of Louisville, Kentucky” authority described on page 1). It entails all problem identification and formulation activities required identifying and recommending plans of improvement. It also includes evaluations required under the National Environmental Protection Act (NEPA) and other applicable environmental and cultural resources regulations – this evaluation will be documented in the EA or EIS. These activities include: scoping and preparation of the environmental document; public coordination and review, and notification of findings; Section 106 and other environmental compliance documentation; coordination of the study and results with all interested parties; initial and final review by the Great Lakes and Ohio River Division, and the Office of the Chief of Engineers. The Feasibility Study culminates with the Notice of the Division Engineer.

### **Other Supporting Documents**

Other supporting study documents or plan-sheets will be developed as needed as the study progresses to address specific items such as local cooperation, real estate acquisition, quality control, value engineering, environmental and cultural matters, and operation and maintenance.

### **Non-Federal Contributions**

The Louisville and Jefferson County Metropolitan Sewer District (MSD) will provide one half of the cost of performing the Feasibility Study, in the form of either cash or in-kind services.

## Nomenclature and Task Description Organization for this PMP

For accounting and administrative purposes all tasks, including in-kind services provided by MSD, have been broken down into a series of work items covering project activities during the feasibility phase. In general, the tasks relate to activities performed by a specific technical or administrative work element within the Corps of Engineers.

The individual work activities required to complete this work are listed in detail in **Appendix A**. All data in the detailed Appendix A table (except for the last 4 “Expensed” columns) comes directly from current detailed Primavera scheduling software; the expenditures’ data in the last 4 columns

comes from current Corps Financial Management System (CEFMS) outputs. Since the project is being actively managed using these two primary software tools, it is appropriate that this PMP lists the work activities directly from the current, activity data sheets.

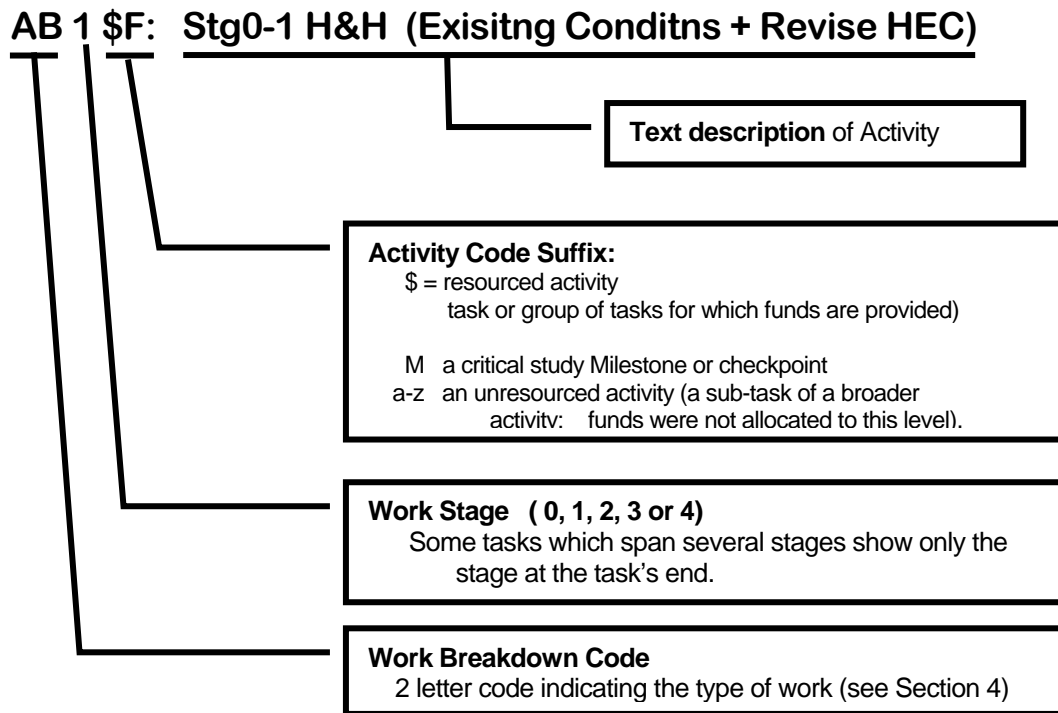
The original PMP, dated June 2005, included a detailed text description for each activity, as well as the calculations for the cost estimates for most activities. For PMP Revision 1 (August 2006), many of these tasks were somewhat re-named or otherwise changed or disaggregated for any of the following reasons:

- 1) Most activity names were adjusted to fit the “Stage 0, 1, 2, 3, 4” organization described in Section 2;
- 2) Some activity names were revised for more consistency in describing work between departments;
- 3) Resourced (funded) activities were disaggregated into separate line-items depending on funding source:
  - Federal funds;
  - Non-federal funds (from MSD);
  - In-Kind work performed in accordance with this PMP by MSD.
- 4) Finally, a few activities were deleted, or a few added, based on the team’s current expectations of work requirements. For instance, after the initial team meeting in Oct. 2005, it became clear that much of the initial hydrologic modeling for the study could utilize data already being developed by the sponsor through one of its contractors (FMSM Engineers). Hence, H&H activities were adjusted to reflect In-Kind credit for all usable work done by MSD contractors (after signing of the FCSA in August 2005), and to accordingly reflect somewhat less work requirements by the Corps for Stage 0 H&H work.

Because of the numerous changes required per items 1-4 above, no attempt will be made in this (or future) revisions to the PMP to describe each task as in the original PMP. The detailed listing in **Appendix A** should provide adequate presentation of required work, schedules, and cost estimates. (However, some might find the original PMP useful to better understand some work requirements – it can be furnished by the Project Manager on request). Any questions relevant to the requirements or outputs of any individual activity should be brought up at team meetings prior to said task’s initiation.

## Activity Name Conventions Used in The Current Activity List and Schedule (Appx. A)

A typical activity in Appx. A is named:



Each “Activity Name” shown in Appendix 1 begins with a four to six character code, such as “AB1\$F” illustrated above. (The 6-7 character “Activity *Number*” shown in Appendix 1 may be ignored – it is merely a unique number used by the system). The first 2 letters of this code, such as “AB” above, refers to an element (usually an office group or “section” in the Work Breakdown Structure, which is discussed in Section 4. This is followed by a single digit (0-4), referring to the activity’s Stage. The remaining characters in the code (the code suffix) may include any of the following:

**\$F** = Activity funded Federally.  
**\$G** = Activity funded by MSD.  
**\$K** = Activity performed by MSD (in-kind)  
**\$S** = Supervisory Activity (Fed. funds)  
**\$SG** = Supervisory Activity (MSD funds)  
**\$R** = ITR review (Fed. funds)  
**\$RG** = ITR review (MSD funds)

**M** = Starting Milestone or Finish Milestone (not resourced).  
A checkpoint in the study that signifies either the start of a major portion of work, or the completion of a major portion of work.

**a-z (without a \$-sign)** = unresourced task. One or more tasks which are subordinate to a larger resourced activity. Some resourced activities are split-out to maintain schedule control of technical work products.

Section 2 of this PMP presented the Work Breakdown Structure (WBS) – the overall organization for this activities list. Section 4 presents the Organizational Breakdown Structure (OBS) and the Responsibility Assignment Matrix (RAM) --showing the responsible functional elements for each work activity. Section 6 presents the schedule for completion of significant work milestones.

The rest of this section describes, **in general terms**, work by each element of the WBS (by each study team or office group).

## General Task Descriptions (arranged by WBS activity-group account)

The work to be completed by each element of the WBS is described below.

**Note:** Each WBS account uses a “modified” Corps’ activity code prefix (such as “AA” below for Surveys & Mapping). These codes were modified from the standard Corps’ codes (as used in the original PMP) only in that the initial “J” was discarded -- i.e., in the original PMP, “Surveys & Mapping” was coded with prefix “JAA”. The initial “J” in the original PMP merely referred to “Feasibility-study” activities, and is now omitted herein to simplify P2 data maintenance.

## A\_\_ ENGINEERING

(except for Cost Engineering, which is listed separately as H\_ , and HTRW, listed as F\_ ).

### AA Surveys & Mapping

This account includes the cost for 1” = 100’ mapping and digitizing the data for input into a CADD system. Also included is the cost for field survey work on bridges and in other areas to help supplement the mapping. The information will be used by H&H, Economics, and/or Civil Design.

MSD’s work effort will consist of updating selected portions of the 1” = 100’ existing mapping and furnishing the updated mapping to the Corps for use in its CADD system. MSD will also identify existing and potential locations of their planned and ongoing projects.

MSD will secondarily prepare “planning maps” on an as-needed basis, using the LOJIC (Louisville & Jefferson Co. Information Consortium) GIS database coupled with CADD information (from sources described above), to display plans for reports in color, and to prepare maps for economics team use. The Project Manager will consult with MSD on the production of these maps.

### AB Hydrology & Hydraulic Studies and Report

This account includes the costs for the investigative effort to collect and analyze the hydrologic data and stream flows under natural (Without-Project) and controlled (With-Project) conditions. This work will require the preparation of watershed discharge factors, stream profiles, frequency curves,

site storage capacity data, and storage requirements for the structural alternatives evaluated. Non-structural alternatives will also be evaluated.

Material from these activities will be incorporated into a section on “Hydrology & Hydraulics” in the Engineering Appendix to the feasibility report.

MSD will provide to the Corps inputs and outputs for a comprehensive HEC unsteady flow model of the upper Mill Creek basin, being developed by an MSD contractor (FMSM Engineers) during 2005 and 2006. MSD will receive in-kind credit for applicable work done by FMSM since the execution of the FCSA on August 2, 2006. The Corps will use applicable data from this model, expanding the database and making minor adjustments as required. MSD will also coordinate with the Corps to assure that the county’s existing and planned drainage projects are incorporated in the model for the HEC analyses. MSD will also have an opportunity to review and provide comments on the H&H outputs.

## **AC Geotechnical Studies and Report**

This account includes the effort to perform a records and literature research (including a geology write-up), develop a drilling plan and take borings, do soil laboratory testing, provide input into the formulation process (which leads to the identification of the recommended plan), and do slope stability analyses. Costs attributable to work under this account also includes the effort required to prepare boring logs, do a write-up for the draft and final reports, and respond to any comments received resulting from review of the AFB package and the draft report.

Material from these activities will be incorporated by the Corps as part of the the Engineering Appendix to the feasibility report.

Work effort for MSD will consist of ongoing review and coordination with ED-TG on the investigation and analysis of foundations and materials related to the design and construction of detention basins and any other flood damage reduction components. Based on its knowledge of the Mill Creek watershed, MSD may also serve as a resource for supplemental information on items such as subsurface conditions. It is not anticipated at this time, however, that any major In-Kind service by MSD is required for this effort.

## **AD Engineering & Design Analysis and Report with Preliminary with Drawings**

This account includes the effort for civil engineering design analyses and the preparation of layouts, drawings, and quantity estimates throughout the feasibility phase. Design effort will be needed early in the study (Stages 1 and 2) to assist in formulating, scoping, and screening flood damage reduction components and the alternative plans. After the screening is complete (during Stage 3), design of the NED plan and locally preferred plan (if different and requested) will be finalized.

Material from these activities will be incorporated as part of a design section(s) within the Engineering Appendix to the feasibility report – including a set of feasibility-level drawings for the Stage 3 alternatives.

During the plan formulation process of identifying alternative measures to be screened, and in actually performing the screening, MSD will be required to work closely with the Corps. MSD will review draft designs and provide comments. MSD's responsibility in this area will continue throughout the study as more detailed plans are formulated and designs developed. MSD will provide input to the Corps regarding operation and maintenance costs for the alternatives and will also provide available information on existing flood warning preparedness plans. MSD will also assist in the process of locating existing utilities in the project areas. In-Kind work by MSD will be requested as-needed.

## **AE Electrical Engineering**

This account includes the effort for electrical engineering assistance, primarily during Stage 3 preparation of final feasibility-level plans. A brief section on electrical engineering requirements will likely be required in the Engineering Appendix.

## **AF Mechanical Engineering**

This account includes the effort for mechanical engineering assistance, primarily during Stage 3 preparation of final feasibility-level plans. Mechanical design would be required if pumps or other mechanisms are required in any final designs. A brief section on mechanical engineering requirements will likely be required in the Engineering Appendix.

## **AG Structural Engineering**

Major structural analysis is unlikely in this study, but this account includes the effort for any such analysis, primarily during Stage 3 preparation of final feasibility-level plans. Structural analysis would be required if certain features are required such as large pump stations, flood walls or levees, etc. A brief section on structural analyses and design criteria used will likely be required in the Engineering Appendix.

## **AV Value Engineering**

Corps' Regulations require that a Value Engineering study be completed prior to construction, to assure that optimum and low-cost designs are considered. It makes sense that this Value Engineering work be done prior to the issuance of the Feasibility Report, to assure that no low-cost design options are overlooked (this could be strategic to a planning recommendation which hinges on finding an economically-justifiable plan).

Value Engineering generally involves a multi-day “symposium” attended by designers and planners from various disciplines, and uses various techniques to brainstorm and consider design improvements or techniques which might otherwise be overlooked. MSD would participate in this symposium, and In-Kind activities are provided for this participation. Ideally, the Value Engineering work would commence prior to beginning detailed Stage 3 analyses.

----- END of ENGINEERING ACTIVITIES (except for Cost Engineering, which is listed as AH\_, and HTRW, which is listed as F\_ below) -----

## **BA and BB Socio / Economics**

Early in the study (Stage 0), the Economics Team leader will manage a detailed inventory of all structures in the 0.2%-chance (“500-year”) floodplain within the study area. This will be accomplished using established Corps techniques for such inventories, and will include (at a minimum):

- Visual or instrument-assisted estimation of first-floor elevations of all primary commercial, residential and public buildings (to within about 0.2 feet accuracy, if possible).
- Estimate of a “zero-damage” elevation for each structure – this may or may not be the first-floor elevation, depending on building type, and whether or not a basement is involved.
- Digital photography and collection of notes on structures’ construction type and size (used to estimate building value).
- For commercial structures, interviews with building managers (wherever possible) and completion of forms to document unique building features and content values.
- Use of approved Corps techniques or software to estimate each property’s structures’ values and contents’ values.
- Use of Corps HEC / FDA software to relate building locations to flood profile data, and estimate damages for various potential flood events.
- Interviews with county officials, fire and police departments, and other emergency service agencies to estimate costs of emergency services based on previous flood events.

Damages to roads might be estimated based on depth-damage functions developed by the Corps Lower Mississippi Valley Division. Representatives of the local utility service companies may be contacted in order to obtain estimates of damages to physical plant belonging to utilities.

Emergency costs and costs of traffic diversion when streets are impassable during flooding will also be considered. Costs for providing emergency services during flooding may be obtained from the American Red Cross, fire departments, the Louisville Metro and Shively Police Departments, and the Louisville and Jefferson County Disaster and Emergency Services office. These costs included costs to provide mass care, assistance to families, traffic control, evacuations, preventive patrol efforts and administration costs. Estimates of traffic diversion costs may be based on traffic counts, including percent of commercial trucks, obtained from the State Department of Highways for arterial roadways in the flood plain. Estimates of additional operating costs and delay costs may be made based on depths and duration of flooding.

The above data will aid the team economist and other team leaders in estimating the extent and

location of Without-Project damages. The economics team will then coordinate with other disciplines (during Stage 1 and 2 plan formulation) in developing alternatives to effectively reduce these damages. During each of Stages 1, 2, 3, and 4, the economics leader will compute expected damages, net benefits, and benefit-to-cost ratios for each considered alternative. Costs and benefits will be amortized across a 50-year planning period, beginning with the first year that construction is expected to be complete. The economist will be careful to include ongoing and future Operations, Maintenance and Rehabilitation costs (generated by the Engineering team) in these cost and benefit computations. The economist will also inventory social conditions relevant to the neighborhoods within the study area and for the metropolitan community as a whole during Stage 0, using U.S. census and / or other relevant data. These data will consider population, employment, housing, education, and industrial activity in the study area, and projections of these same items will be done in order to describe not only the existing but also the future without project condition. During Stages 2 and 3, the economist will write a brief report discussing impacts to social conditions (if any) as the result of alternatives under consideration. Some of these data may be generated by MSD as In-Kind services, if MSD has personnel and other resources to develop these data and report.

Economics and social data and computations will be documented in an Economics Appendix. Some of this data, particularly the social impact data, may also be used by the Environmental team and quoted within the Environmental Assessment or EIS.

**Note:** in the original June 2005 PMP, Social studies were listed as a separate category (JBB).

## **BD Ability to Pay Report**

This account includes the effort required by the Louisville and Jefferson County Metropolitan Sewer District to prepare a brief report demonstrating their ability to finance their portion of the project costs. MSD will be responsible for preparing the forms and documentation, provided by the Corps, demonstrating legal and financial capability to support project construction. Demonstration of financing capability consists of submitting the statement of financial capability and the financing plan. The statement of financial capability serves to provide a description of the sponsor's capability to meet the financial obligations for the project in accordance with the project funding schedule. The financing plan presents a description of how the sponsor plans to meet its financial obligations for the project, in accord with the project funding schedule.

## **BE Financial Analysis Report**

This account includes the coordination required by the Corps to determine the cost allocations between the Corps and the sponsor (MSD), the best method of financing the project costs and effort sharing, and the effort to evaluate the sponsor's financial capability. There is no MSD work effort included in this account.

The Corps will evaluate the sponsor's financial capability for project construction and for handling any post-construction costs such as operation and maintenance, bond debt service, major repairs, and long term replacements to any of the project features. The Corps will evaluate the sponsor's financing plan for construction of the project, which includes Government outlays, sponsor cash and credit contributions, and contributions of lands, easements, right-of-ways, relocations, and disposal areas (LERRD).

## **C\_ Real Estate**

During the feasibility study, the Louisville District's Real Estate Division will coordinate rights of entry; prepare screening-level cost estimates; prepare a real estate gross appraisal; provide input for the MCACES cost estimate; prepare detailed information for Lands, Easements, Rights of Way, Relocations, and Disposal Areas (LERRDs) for the recommended plan; prepare a Real Estate Plan for inclusion in the Feasibility Report; participate in responding to review comments by the Independent Technical Review (ITR) Team, Great Lakes and Ohio River Division (LRD), and HQUSACE; and will provide input into the Project Management Plan (PMP). Real Estate Division will also administratively participate in development of the project and determination of the local sponsor's legal and financial capability.

The Real Estate Plan, essentially an appendix to the draft and final reports, will give a detailed description of the real estate required for the project, property valuation, project administrative costs, and verification of the sponsor's legal and financial capability to perform the work and acquire property in accordance with PL 91-646. The Real Estate Plan will be prepared to the same level of detail as the rest of the study and will be consistent with ER 405-1-12, Chapter 12. The minimum estates required for flood protection without consideration of any recreation features will also be identified in the Real Estate Plan, and, if recreation features are proposed, there will be a clear description of LER value increments attributable to the addition of recreation rights.

MSD will be responsible for assisting Corps personnel during field surveys of the affected properties in the study area by helping to obtain rights-of-entry (ROE). In addition, MSD will work with Corps personnel to establish their administrative costs for acquiring LERRD.

## **DB Environmental (EA or EIS, , except for USFWS work)**

This account includes the environmental data collection and evaluation of the environmental character of the study area and the proposed project sites, not including work effort specifically by the U.S. Fish and Wildlife Service (USFWS). Costs of the environmental baseline development and impact assessments are included. The project includes several primary detention basin sites that will be considered individually and in combination. Opportunities exist for the development of floodwater retention areas that may provide significant positive environmental values.

The cost estimate has been prepared assuming that an Environmental Assessment (EA) will be sufficient for this study, as opposed to a more comprehensive Environmental Impact Assessment (EIS). If applicable, based on findings discussed in the EA, a Findings of No Significant Impact (FONSI) may be issued. The study will be conducted cooperatively with the U.S. Fish and Wildlife Service (USFWS) and the Kentucky Department of Fish and Wildlife Resources (KDFWR). This account also includes the cost of the environmental team's coordination with all federal, state, and local agencies, organized groups, and interested individuals.

A "draft" EA will be submitted by the Corps with the draft feasibility report and a "final" EA with the final feasibility report.

Throughout the study process MSD will be responsible for assisting in the coordination and meetings with federal, state, and local agencies; organized groups; and individuals interested in projects which have the potential to impact the environment in the Mill Creek basin. MSD will assist in identifying these groups, who are also interested in providing input for environmental features that will provide positive environmental values. These environmental features will be evaluated for incorporation into the final design. (Costs for MSD coordination are included under "Project Management" in-kind activities.)

## **E\_ US Fish & Wildlife Service (USFWS) Work**

Funds will be provided for coordination and reports from the US Fish and Wildlife Service, in conjunction with National Environmental Policy Act (NEPA) rules and the Fish & Wildlife Coordination Act, as follows:

- Initial Coordination with USFWS during Stages 0-2, including receipt of a Planning Aid Letter (PAL) from the Service.
- Coordination with USFWS on the final array of alternatives, during Stage 3, and receipt of a DRAFT Coordination Act Report (CAR) from USFWS.
- Coordination with USFWS following release of Draft report and in conjunction with public meeting / workshop, and receipt of a final CAR from USFWS, for inclusion in the final report.

## **F\_ HTRW Studies**

According to the November 1997 905(b) Analysis (reconnaissance report), a series of five Environmental Risk Information and Imaging Services (ERIIS) reports were prepared as part of the 905(b) Analysis. Record searches of the target area, within 0.25, 0.25-0.50, and 0.50-1.0 mile radii of the site's latitude and longitude, were conducted to identify potential Hazardous Toxic Radiological Waste (HTRW) areas. The results of this records and literature research indicated that of the ten sites all but two had registered underground storage tanks (RST's) within the 0.25 mile radius of the site. In addition, two sites had water wells within a 0.25 mile radius. There were other RST's and water wells located between the 0.25-0.50 mile radius. There were no sites identified that had either RST's or water wells outside the 0.50 mile radius of the site. (Unfortunately, as of the date of Revision #1 to this PMP, copies of this record/literature research could not be found during a cursory review of Planning Branch and Engineering files).

For this Feasibility-level study, the environmental condition of properties within the Mill Creek watershed will be reviewed again. For parcels where flood damage reduction features are planned, a site description will be produced. For each parcel a general history, site ownership, site operations, and risk of contamination profile will be provided. Existing aerial photographs will be reviewed. Underground storage tank activity, reported spill incidents, locations with state remediation actions, hazardous material handling, or hazardous waste handling in the vicinity will be reviewed for risk of contamination issues.

Field observations will be conducted to verify environmental conditions of parcels. Since the parcels will likely be third party land, soil and /or groundwater sampling and analysis is not planned. Should situations arise where sampling and analysis are necessary, additional separate funding will be needed to complete the chemical analyses. Flood damage reduction parcels will be categorized as to risk of hazardous substance contamination as presented in 42 U.S. C. 9601 et seq. Parcels with some hazardous substance contamination will either be avoided or used in flood damage reduction features. Where parcels are used in flood damage reduction features, quantities will be estimated for the purpose of cost estimation and for information and notice for the project local sponsor.

## **GF\_ Cultural Resources**

This account includes the effort for an evaluation that will be made of the impacts of plan components upon historical, cultural, and archaeological resources. Work will begin with a literature/database search of any known/suspected resources within the study area, and with coordination with the State Historical Preservation Office (SHPO). If required, following coordination with SHPO and a review of the considered alternatives, some sites may require a “Phase 1 Reconnaissance” and report (often requiring shovel testing or backhoe trenching). (Funding has been budgeted for a reasonable amount of Phase 1 testing, based on similar studies). Documentation will be submitted for review to the Kentucky State Historic Preservation Office. An assessment of the impacts of the proposed project upon cultural resources will be prepared as part of the EA/EIS analysis. The results of the investigation will be presented in a separate appendix of the feasibility report.

MSD should provide the cultural resources leader any existing files or databases on any known cultural resources that may exist in the area of the alternatives that are investigated. MSD will also provide information on any significant findings they have encountered associated with any of their existing or planned drainage projects in the study area.

## **HA\_ Cost Estimates**

This account includes the preparation of all the cost estimates leading up to identification of the recommended plan. Cost information compiled during the 905(b) Analysis may be used, to whatever

extent possible, to prepare estimates for plan features identified during the initial alternatives' screening (Stage 1 formulation). . After the Stage 1 is complete, cost engineering will update costs, as required, for revised and re-configured plans during Stage 2 optimization work. Finally, a detailed (MCACES-format) cost estimate will be prepared during Stage 3 for the alternatives documented in the draft report (usually a recommended NED plan and a locally preferred plan). Minor revisions of these costs will likely be required following public and interagency review of the draft report (during Stage 4).

Detailed cost evaluations for any future expected operations, maintenance, and rehabilitation work (OM&R) over the considered 50-year life span of plan activities will be included in the cost estimates.

No MSD work effort is anticipated in this account.

## **IE Public Involvement**

The objective of the Public Involvement activities is to open and maintain channels of communication with the public in order to give full consideration to public views and information in the feasibility phase of the study. The effort included in this account assumes two general public meetings/workshops and approximately six meetings with local officials/agencies, environmental interests, and other interested agencies. Other work items include the preparation of public notices, responding to inquiries from the general public, and the preparation of materials/slide presentations for meetings.

The materials generated as part of these work tasks will be documented in the feasibility report.

MSD will be responsible for providing assistance in the development and implementation of the public involvement strategy that will be used throughout the study. MSD will have the appropriate individuals attend meetings with state and local agencies and the two public meetings. MSD will also be responsible for providing the facilities for the two public meetings and assisting in the preparation of the mailing lists for each of the public notices.

## **JA Plan Formulation** **(Initial Formulation during Stages 0-2)**

This account includes the effort required to define the planning framework; including problem identification, Without Project Condition, and the identification of specific planning objectives and constraints (Stage 0). Also included is the effort required for the initial formulation and optimization of an array of With-Project alternatives (solutions and opportunities) by the Corps and MSD (Stages 1 and 2). The evaluation will compare the costs and benefits associated with each plan so as to narrow down (screen) the alternatives to just one or two for final evaluation (per the next account KA). Also during Stage 2, the formulation leader together with the entire team will develop a detailed outline of

the draft report (including Appendices) – indicating responsible parties for each section of the report(s).

## **Feasibility Scoping Meeting (FSM)**

During Stage 1 work, a Feasibility Scoping Meeting (FSM) will be held. Quoting from *Engineer Regulation 1105-2-100, the Planning Guidance Notebook*, Appendix G, Amendment #1, dated 30 Jun 2004:

The purpose of the FSM is to bring the USACE vertical team, the non-Federal sponsor, and resource agencies together to reach agreement on the problems and solutions to be investigated during the feasibility study and the scope of analysis required. The FSM should be held upon completion of steps 1 and 2 of the planning process (i.e.; Step 1 - Identification of Problems and Opportunities; Step 2 – Inventory and Forecast Resource Conditions) and preliminary plan formulation and evaluation. The FSM is also related to the NEPA scoping process (see ER 200-2-2) which determines the scope of issues to be addressed and identifies the significant issues related to a proposed action. In general, the district should convene a FSM after the NEPA scoping process and the preliminary plan formulation and evaluation have been accomplished and the district is prepared to focus and tailor the feasibility study on key alternatives, to further define the depth of analysis required and to refine study/project constraints.

FSM documentation should include, as a minimum, a detailed description of identified problems and opportunities, statements of specific planning objectives and constraints, a detailed description of future without project conditions, a description of applicable management measures, the results of preliminary plan formulation and evaluation (i.e.; screening), and the results of preliminary coordination and public involvement. Issues that need to be resolved should be identified and fully documented and the district should present its analysis of options considered. FSM documentation will address the general evaluation guidelines presented in Exhibit G-1 to the extent possible at this early stage of the study.

Exhibit G-4 is an expanded outline of the information to be included in FSM documentation and addresses the level of detail required. Technical work products that support the FSM documentation (e.g.; surveying & mapping, hydraulics & hydrology, average annual damage computations, etc.) should have been subject to technical review (ITR). Although ITR issues may not have been fully resolved, a status report discussing significant ITR concerns and how these concerns will be resolved must be provided as part of the FSM material. The transmittal of the FSM material to Headquarters should include a document that explains what actions have been taken to address any issues identified by Headquarters in the reconnaissance guidance memorandum.

Upon completion of the process outlined in this exhibit, Headquarters will issue the FSM Guidance Memorandum. The guidance memorandum will identify any changes in the conduct of remaining feasibility study activities agreed to by the USACE vertical team and will be used to revise the PMP, if necessary.

(see <http://www.usace.army.mil/inet/usace-docs/eng-regs/er1105-2-100/entire.pdf>)

## **IRCs and IPRs**

Later in the study (during Stages 2-3), Issue Resolution Conferences or In-Progress Reviews (IRCs/ IPRs) may be called as necessary. The purpose of an IRC is to involve the USACE vertical team in the early identification and resolution of potential problems technical / policy / legal) that could delay study progress. The purpose of an IPR is to provide the USACE vertical team and others,

as needed, an update of study findings and progress. IRCs and IPRs can be held at any time during the study process at the request of any USACE vertical team member (i.e.; District, Division or Headquarters) or the ASA(CW).

### **Local Sponsor Involvement during Initial Formulation**

MSD will be responsible for close coordination in the formulation and scoping process of all the alternative plans. Included is the requirement that MSD provide guidance on the local acceptability of the alternatives and input regarding the locally preferred plan(s), if different from the NED plan.

## **KA / L\_ Feasibility Report (Final Formulation during Stages 3-4)**

These accounts cover formulation and evaluation of the final alternatives, as well as development of the draft and final interim feasibility reports. Early in Stage 3, one or two final alternatives will be selected for final evaluation. One alternative must be a plan that Stage 2 work has identified as the National Economic Development (NED) plan -- the alternative that maximizes economic benefits to the nation, such as through flood-damage reduction. An alternative that represents a variation to the NED plan (a locally-preferred plan) may also be identified. Stage 3 analyses will involve detailed evaluation and comparison of these final alternative plans, against the Without-Project or base condition.

Stage 3 work includes preparing the draft report -- assembling, writing, editing, typing, reviewing, reproducing, and distributing the report, environmental assessment, and other related documentation required for transmittal by the study team for public, interagency, and HQUSACE review. (Much of this will involve assembling and editing technical memos, charts, and evaluations that have already been developed during Stages 1 and 2). The draft feasibility report will consist of:

- (A) a main report, which summarizes the technical findings and contains the study conclusions and recommendation;
- (B) an Environmental Assessment (EA) or Environmental Impact Statement (EIS); and (if applicable), a Finding of No Significant Impact (FONSI)
- (C) an engineering technical appendix;
- (D) other appendices covering work accomplished in the various accounts, including real estate evaluations, public involvement, the sponsor's financial capability, a preliminary financing plan for project implementation, and so on.

Prior to completing the entire draft report for public review, portions of the draft will be assembled in advance for various Independent Technical Review (ITR) purposes, and for the

Alternative Formulation Briefing (AFB). An AFB package (say, a “75%” summary of the main report), will be assembled approximately three months prior to public distribution of the report draft. (A description of AFB requirements is provided later). To the greatest extent possible, all report and appendix “originals” will be assembled into final-format MS-Word or Adobe Acrobat (or similar) electronic formats. Complete (page-by-page) electronic copies of finished products will facilitate printing as well as electronic and / or Internet distribution of the reports.

Simultaneous with public and interagency review and the holding of a final public meeting/ workshop (or in some cases PRIOR to public review), the entire report will be submitted for Washington Level Review (WLR) -- see the next sub-section regarding WLR. Stage 4 formulation efforts will consist of revising the draft report so as to document public comments and the team’s replies to all comments, as well as to address any policy concerns raised by the WLR. Formulation efforts end when the Division Engineer issues his notice that the Feasibility study is complete.

MSD (as In-Kind services) will participate in the above activities as follows:

- Participation in all decision-point meetings regarding the screening / selection of alternatives.
- Detailed review of all versions of the AFB package and the draft and final reports.
- Formal Independent Technical Review of the AFB package and the draft report.
- Preparation of maps, especially for the main report and EA.
- Reproduction, assembling, and mailing of the draft and final reports (to the greatest extent possible).  
The Corps will handle actual final editing of the reports. If MSD has the capability of doing final printing and distribution, the Corps team will provide all necessary electronic media (originals) and transmittal letters to assure proper distribution in accord with Federal regulations and NEPA compliance.

### **Alternative Formulation Briefing (AFB).**

Quoting from *Engineer Regulation 1105-2-100, the Planning Guidance Notebook*, Appendix G, Amendment #1, dated 30 Jun 2004:

The AFB was established to save time and costs in the preparation and review of feasibility and general reevaluation reports, and to facilitate Headquarters participation in plan formulation. The purpose of the AFB is to confirm that the plan formulation and selection process, the tentatively selected plan, and the definition of Federal and non-Federal responsibilities are consistent with applicable laws, statutes, Executive Orders, regulations and current policy guidance. The goal is to identify and resolve any legal or policy concerns that would otherwise delay or preclude Washington-level approval of the draft report, and to allow the districts to release the draft report to the public concurrent with the Headquarters policy compliance review of the draft report.

An AFB should be held when the District is prepared to present the results of the alternative formulation, evaluation and comparison of plans and has identified a tentatively selected plan [*i.e., during what this PMP calls Stage 3 studies*]. The AFB is concerned with the adequacy of the formulation, evaluation and comparison of alternative plans (steps 3 through 5 of the planning process), the reasonableness of the costs, benefits, and impacts of the final array of plans, and the proper application of cost sharing and other legal and policy requirements in arriving at the tentatively selected plan. The AFB should also provide a current description of problems and opportunities, planning objectives and constraints, and the without-project condition (steps 1 and 2 of the planning process). Issues that need to be

resolved should be identified and fully documented and the districts should present their analysis of options considered and its tentatively recommended solution.

AFB documentation should provide all information that is pertinent to the formulation, evaluation, comparison, and selection of the tentatively recommended plan. The AFB documentation will address the general evaluation guidelines presented in Exhibit G-1. Exhibit G-5 is an expanded outline of the information to be included in AFB documentation and addresses the level of detail required. Conceptually, AFB documentation would be comparable to a draft report that is about 75 percent complete. Although not required, if the draft report is available, that report may serve as the AFB documentation. Technical work products that support the AFB documentation (e.g.; surveying & mapping, hydraulics & hydrology, environmental/NEPA documentation, average annual damage and benefit computations, cost estimates, etc.) should have been subject to independent technical review (ITR). Although ITR issues may not have been fully resolved, a status report discussing significant ITR concerns and how these concerns will be resolved must be provided as part of the AFB material. The AFB material must also include a document stating how concerns identified in the Headquarters FSM guidance memorandum have been addressed.

Upon completion of the process outlined in this exhibit, Headquarters will issue the AFB Guidance Memorandum. The AFB Guidance Memorandum will be used by the District to complete all required detailed analyses and prepare the draft feasibility report/NEPA document. Subject to the district presenting its resolution of issues from the AFB Guidance Memorandum and Headquarters approval, the draft feasibility report/NEPA document will be distributed for the required 45-day public review concurrent with transmittal of the draft report to Headquarters for policy compliance review.

## **PA Project Management**

This account includes the financial, logistical, and institutional efforts to manage the execution of the feasibility study; including the preparation of work orders, specific work requests, overseeing the timely completion of study tasks, and monitoring schedules and funding. It includes the preparation of correspondence required to initiate and conclude study coordination with federal, state, and local agencies. Management of the feasibility study team is an ongoing responsibility of the project manager, i.e., scheduling meetings, identification of major tasks to be completed, and coordination with team members on the development of study products.

Additionally, the Project Manager will prepare and/or review and endorse annual budget submissions as well as all programming and reprogramming documents prior to submittal to HQUSACE. This account also includes the costs associated with the requirements necessary to comply with the Project Management regulations and briefings at monthly Project Review Board (PRB) meetings.

MSD will be responsible for having the appropriate personnel attend all required meetings listed in the Project Management Plan (PMP) schedule, management of the in-kind work to be provided under other accounts, and providing budgetary and schedule input for completion of the study tasks. On-going coordination between MSD and the Corps is critical, and MSD's costs associated with this coordination are included in this account.

## **M0 Washington-Level Review**

At the beginning of Stage 4 work, simultaneous with public and interagency review and the holding of a final public meeting/ workshop (or in some cases PRIOR to public review), the entire report will be submitted for Washington Level Review (WLR). Quoting from Engineer Regulation 1105-2-100, the Planning Guidance Notebook, updated 30 Jun 2004:

Decision making for the selection of a recommended plan begins at the district level and continues at the Headquarters level through subsequent reviews and approval. ... For congressionally authorized projects, the final agency decision maker is the Secretary of the Army through the Assistant Secretary of the Army for Civil Works.

Headquarters shall be responsible for the policy review, approval and certification of all decision documents requiring Congressional authorization or ASA(CW) approval. Policy review involves the analysis of decision factors and assumptions used to determine the extent and nature of Federal interest, project cost sharing and cooperation requirements, and related issues. Policy compliance review shall ensure that established policy and procedures are applied uniformly nationwide and identifies policy issues that must be resolved in the absence of established criteria, guidance, regulations, laws, codes, principles and procedures or where judgment plays a substantial role in decision making. Policy compliance review also shall ensure that the proposed action is consistent with the overall goals and objectives of the Civil Works program. The final approval and certification of decision documents for policy compliance shall incorporate the AFB PGM and its approved modifications, with sufficient review to assure that documents remain consistent with policy; this shall not constitute a new or independent policy review. Appendix H discusses in detail the policy compliance review process.

A HQUSACE policy compliance review is required prior to public release of the draft report unless an AFB resulted in a guidance memorandum that approved concurrent HQUSACE and public review. After completing the technical, policy and legal review of the draft report and making any resulting changes, the District will provide ten copies of the draft report and ten copies of the PGM compliance memorandum to HQUSACE as required in paragraph H-2. The compliance memorandum will note where in the report resolution of a policy issue is documented. The District should provide the Division with an appropriate number of copies.

Thirty days should be scheduled for the policy compliance review. The District may complete the final report following receipt of the HQUSACE assessment that the report complies with policy and that proper procedures have been followed.

In accord with other portions of ER1105-2-100, \$50,000 has been budgeted for Account M0, to cover both Louisville District and local sponsor (MSD) coordination and meetings (including travel to Washington, DC) to complete the WLR process.

The final interim feasibility report cannot be issued until the WLR is complete.

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## ORGANIZATIONAL BREAKDOWN STRUCTURE

### Organizational Work Responsibilities

This Organizational Breakdown Structure (OBS) describes the responsibilities of organizations that will provide input to, and/or complete tasks identified in, the Scope of Studies and Work Breakdown Structure. Team leaders for each discipline are listed in Table 7.2 at the end of this Section.

#### **Corps of Engineers, Louisville District**

##### **Programs and Project Management Division / Planning Branch**

The Project Manager in Planning Division, Plan Formulation Section is responsible for overall management of the study so that it is completed within the given time frame. Major activities include management of feasibility study teamwork efforts so that tasks are completed in a timely manner, monitoring schedules and funding, and overall organization and editing of the feasibility report. The Corps' economists also work within the Formulation Section, and will be responsible for developing economic data, gathering demographic information, and analyzing the economic effects of each of the alternative plans, leading to the identification of a recommended plan. The Planning Environmental Section will be responsible for developing environmental and cultural resources data; assessing environmental impacts; preparing a mitigation plan (if needed); and environmental compliance of the recommended plan.

##### **Programs and Project Management Division / Civil Works Branch**

Assuming that the Feasibility study identifies an alternative which is justifiable and recommendable (during Stage 3 work), a Project Manager (PM) for the design/construction phase will be appointed, probably from the Civil Works Branch. He/she will attend meetings throughout the end of study Stages 3 and 4, and will prepare a new Project Management Plan (PMP) for the design/construction phase -- once a Federally-supportable plan is identified.

## **Engineering Division**

The Engineering Division's Project Engineer/Architect (PE/A) is responsible for managing the Engineering Division's contribution to the feasibility study. This includes coordinating with the Project Manager regarding the status of all study efforts within Engineering Division.

Under the general coordination of the PE/A, the Geotechnical Section is responsible for input into the design of the project components (possibly detention basins, levees, floodwalls, etc.) and other geotechnical activities, including subsurface exploration. The Cost Engineering Section is responsible for developing screening level cost estimates for each of the alternative plans (including operation and maintenance costs), and for developing the detailed MCACES cost estimate for the recommended plan. The Hydrology and Hydraulics Design Section is responsible for determining the hydrologic and hydraulic effects of each of the alternatives and for providing extensive support to Planning Division in formulation of the alternatives. The Environmental Engineering Section will be responsible for all Hazardous, Toxic, and Radiological Waste (HTRW) analyses throughout the course of the study. The Civil Section of Design Branch will develop necessary mapping and surveying for use by other Engineering Division designers. (Certain other maps, particularly for planning purposes) will be provided by MSD, as discussed later.) The Civil Design Section will be responsible for the screening level design of each alternative and the detailed design (overall layout) of the recommended plan.

## **Real Estate Division**

The Real Estate Division is responsible for developing screening-level (Stages 1 and 2) real estate cost estimates, and for developing a Real Estate "appendix" (The Real Estate Plan) during Stage 3, which will include:

- determining land ownership;
- a real estate and/or relocations cost estimate;
- a schedule of real estate acquisition milestones; and
- a general description of the area and total acreage to be acquired; with fee and easement breakdown.

The Real Estate team leader will also be responsible for securing rights-of-entry for technical data collection when required during the Feasibility study.

## **Local Sponsor (MSD)**

The Louisville and Jefferson County Metropolitan Sewer District (MSD) is the local sponsor for the project and its representatives will be directly involved in all aspects of the feasibility study. The Corps will fully coordinate with the sponsor's representatives for their experience and expertise concerning the project, their attendance at study progress meetings and public workshops, technical

input, participation in the plan formulation process, development of the recommended plan, and an independent technical review of study products.

In addition to project management coordination during the study, MSD has expressed an interest in performing certain study functions for which it has special technical expertise, especially:

- mapping and geographic information services (GIS);
- hydrologic modeling (through an ongoing contract with FMSM Engineers);
- public involvement ;
- technical review of plans.

Specifically, those study activities marked “In-Kind Services” in the “Resources” column of the activities list (Appendix A) will be accomplished by MSD. The labor and other costs associated for these tasks (up to the estimated amounts indicated in this PMP) will be billed against the study, and credited as part of the 50% non-Federal contributions to the study.

## **Other Participants**

Several agencies/organizations will be consulted throughout the study for their input, particularly:

- the U.S. Fish and Wildlife Service (USFWS);
- the Kentucky Department of Fish and Wildlife Resources (KDFWR); and
- the Kentucky State Historic Preservation Officer (SHPO).

Of course, in keeping with the National Environmental Policy Act (NEPA) and other regulations, copies of the draft and final reports will be circulated among various other state and federal agencies for their review.

## **Description of Coordination and Coordination Mechanisms**

Coordination of this study with federal and non-federal team members and the general public will be emphasized to insure adequate formulation of project alternatives and resolution of technical issues.

The Project Manager (Planning Division) will meet approximately monthly with the study team to discuss study tasks and issues. Special meetings will be called as needed to resolve any issues. Also, as previously noted in Section 3, at least three major interactions with Corps’ higher-authority are scheduled to assure compliance with Federal policy and regulations:

- Formulation Scoping meeting, during Stage 1;
- Alternative Formulation Briefing (AFB), during Stage 3 and prior to issuance of reports;
- Washington Level Review, generally concurrent with public review of the draft report (beginning of Stage 4 work).

## Responsibility Assignment Matrix (RAM)

The RAM (Table 7.1) identifies organizations that will lead or contribute to the development of the major products created by the study. Notice that the work category element codes of the Work Breakdown Structure (WBS) are represented vertically in the first column of the matrix, while Resource Accounts of the Organizational Breakdown Structure (OBS) are represented horizontally in the first row of the matrix. Thus, as required by Corps' regulations, the individual cells of the matrix identify the intersection of the WBS and OBS.

**Table 4-1**  
**Resources Assignment Matrix (RAM)**

<b>Resources ID</b> used in PM reports (such as Appx. 1)	<b>Mail-drop Code</b> <b>or Abbreviation</b>	<b>Description</b>
<b>H2H0A00</b>	<b>CELRL-PM</b>	<b>Planning, Programs and Project Management Division</b>
H2H0D00	CELRL-PM-C	“ “ , Civil Works Branch (Stage 4 and construction)
H2H0F00	CELRL-PM-P	“ “ , Planning Branch
H2H0FA0	CELRL-PM-PF	“ “ “ , Plan Formulation Section
H2HFC0	CELRL-PM-PE	“ “ “ , Environmental Section
<b>H2L0A00</b>	<b>CELRL-ED</b>	<b>Engineering Division</b>
H2L0F00	CELRL-ED-T	“ “ , Civil Engineering Branch
H2L0FA0	CELRL-ED-TH	“ “ , “ , Hydrologic and Hydraulic Design Sec.
H2L0FF0	CELRL-ED-TC	“ “ , “ , Civil Section
H2L0FB0	CELRL-ED-TG	“ “ , “ , Geotechnical & Dam Safety Sec.
H2L0B00	CELRL-ED-D	“ “ , Design Branch
H2L0BE0	CELRL-ED-DM	“ “ , “ , Mechanical & Electrical Sec.
H2L0BA0	CELRL-ED-DS	“ “ , “ , Structural Section.
H2L0H00	CELRL-ED-E	“ “ , Environmental Branch
H2L0HB0	CELRL-ED-EE	“ “ , “ , Environmental Engineering Sec.
H2L0D00	CELRL-ED-M	“ “ , Engineering Mgt. Branch
H2L0DF0	CELRL-ED-MC	“ “ , “ , Cost Engineering Section
<b>H2N0000</b>	<b>CELRL-RE-C</b>	<b>Real Estate Division</b>
H2N0I00	CELRL-ED-MC	“ “ , Civil & Support Branch
<b>H2C0000</b>	<b>CELRL-PA</b>	<b>Public Affairs Office</b>
<b>H2E0000</b>	<b>CELRL-OC</b>	<b>Office of Counsel</b>
<b>AESVCS</b>	not applicable	<b>Miscellaneous Corps' Architectural / Engineering Contractors</b>
<b>INKINDCONT</b>	<b>MSD</b>	<b>Louisville &amp; Jefferson County Metropolitan Sewer District</b>
<b>WKBOTHFED</b>	<b>USFWS</b>	<b>US Fish &amp; Wildlife Service</b>
<b>Note: CELRL = Corps of Engineers, Great Lakes and Ohio River Division, Louisville District</b>		

TABLE 4.2 METRO LOUISVILLE / MILL CR. KY FEASIBILITY STUDY

**TEAM LEADERS LIST**as of June  
2006

Primary Disciplines and Sub-teams	General Responsibilities	Address or Corps Mail DropCode	Phone AC = (502) unless noted
<b>Project Manager</b>	Schedule & executn. Proj. tech. & financial mgt. Primary liason with Sponsor & w/ LRD & Corps' HQ.	CELRL-PM-PF	315-6893
Proj. Mgt. Systems Support (as needed)	Maintenance of District's Project' Mgt. Info Systems ( P2 schedule data).	CELRL-PM	315-6808
<b>Local Sponsor</b>  Louisville & Jefferson Co. Metropolitan Sewer District	Local Coordination. Coordinate MSD tech. products (in-kind work)	MSD 700 W.Liberty Louisville, KY 40203-1911	540-6384
	Beargrass Area Team Leader	..	540-6220
	Project Mapping	..	540-6443
<b>Engineering</b>	Integration / execution of Engineering tasks	CELRL-ED-TH	315-6459
Geotechnical Engineering	Soils & foundations	CELRL-ED-TG	315-6305
Tech. Checker			315-6460
Hydraulics & Hydrology	Hydrologic & hydraulic modeling & design	CELRL-ED-TH	315-6459
Tech. Checker			315-6456
Civil Design (Plan Layouts)	Civil Engrg design, layouts, & X-sections	CELRL-ED-TC	315-6435
Tech. Checker			315-6423
Structural Engineering	Structural design and analyses	CELRL-ED-DS	??
Tech. Checker			??
Environmental Engineerg & HTRW	Hazardous, toxic & radioactive wastes investigations	CELRL-ED-EE	315-6345
Tech. Checker			315-

*Table continued on next page*

TABLE 4.2 (continued from previous page)

**TEAM LEADERS LIST**as of June  
2006

Primary Disciplines and Sub-teams	General Responsibilities	Address or Corps Mail DropCode	Phone AC = (502) unless noted
<b>Engineering</b>	Integration / execution of Engineering tasks	CELRL-ED-TH	315-6459
Cost Engineering	Alternatives' cost estimates	CELRL-ED-MC	315-6387
Tech. Checker			315-6379
<b>Planning</b>	Execute Planning work per ER1105-2-100 & other Regs.	CELRL-PM-PF	315-6893
LRL Planning Exec. Mgt	Planning Policy Review	CELRL-PM-P	315-6857
<b>Plan Formulation</b>	Definition of Plans. Overall data integratr n for comparison of plans.	CELRL-PM-PF	315-6893
Tech. Checker			315-6891
<b>Economics</b>	Benefits / Costs + Social-Econ Impacts	CELRL-PM-PE	315-6796
Tech. Checker			315-6874
<b>Environmental</b>	Environ. Assessment	LRL-PM-PE	315-6877
Tech. Checker			315-6900
<b>Cultural Resurces</b>	Coordinate Cult.Resource needs, & coordination with SHPO.	LRL-PM-PE	315-6871
Tech. Checker			315-6872
<b>Real Estate</b>	Determine RE Interests requirements, & costs. Relocation Cost Ests.	LRL-RE-C	315-7017
<b>Office of Counsel</b>	Legal Certification of Study Products	LRL-OC	315-6653
<b>Construction</b>	Review of Plans for constructability	LCD-CD-Q	315-6130

## FEASIBILITY STUDY SCHEDULE

The following shows some major milestones scheduled, from the information in Appx. A. **This schedule assumes that there is sufficient Federal and Sponsor funding in 2007 and 2008 to continue the study without delay.** (However, as of the date of this PMP revision, this is uncertain – there is no certainty of federal funding for FY 2007. Without FY07 appropriations, please add 9 months to the dates shown below for any item after December 2006).

See also the columns marked “Start” and “Finish” in Appx. A for the schedule for each study activity.

### Major Milestones

Activity Name#	Description	Scheduled Date
PA01	Feasibility Kick-Off Meeting	Oct 05
JA1b	Complete Stage 1 Initial Screening and Formulation Scoping Meeting	Jan 07
JA2m	Complete Stage 2 Optimization	May 07
KA3M	Alternative Formulation Briefing (AFB)	Oct 07
KA3t	Mail Draft Interim Report	Dec 07
KA3y	Final Public Workshop	Jan 08
M04j	Complete Washington-Level Review	May 08
LC4\$Kp	Mail Final Interim Report	Jun 08
LA4M	Division Commander’s Notice of Report Completion	Jun 08

These dates assume continuous and ample Federal and Sponsor funding for the study.

### Task Dependencies and Timeline for Work Activities

The columns marked “Activity Logic” in the Appendix A show the predecessor tasks and successor tasks for each activity. (More detailed printouts of this logic are available from the Project Mgt. on request). With this information, together with an estimate of the duration length for each activity (also shown in Appx. A), the Corps’ “P2” scheduling software can estimate the starting dates and completion dates for all successive tasks.

## BASELINE STUDY COST ESTIMATE

In the original (June 2005) PMP, a baseline (original) study cost estimate of \$1,800,000 was prepared and accepted by all parties. This estimate was based on a task-by-task estimate of labor and other costs (as prepared by each discipline's team leader in 2005), to which was added 10-15% for contingencies for most tasks (averaging about 12% for contingencies overall).

During initial team meetings in October and November 2005, the Project Manager coordinated with team leaders on various adjustments to update the original Activities' List costs. The rationale for these adjustments was discussed partially in Section 3, but largely was due to:

- Identifying four distinct study Stages, and the outputs / goals for each Stage, based on the Project Manager's experience with studies of this type and with current Corps' practice and regulations.
- Identifying data outputs, such as mapping and / or major conferences, more distinctly.
- Including funding explicitly for team/Sponsor coordination and travel during Washington-Level review.
- Increased costs for actually printing data and final reports.
- Adjusting H&H work and In-Kind H&H efforts due to information available from ongoing MSD-Contractor efforts in the basin.

In the course of adjusting the Activity List's cost estimate in late 2005-early 2006, the Project Manager removed the contingencies amounts from each discipline, and placed these amounts in reserve under Project Management control (as is standard-operating policy in the Louisville District). These contingency amounts now appear in the blue lines in Appx. A under "Project Management." The overall study cost estimated was left at \$1,800,000 – however, this estimate is somewhat "risky" in that overall contingencies were reduced considerably – to about \$30,000 or about 2% for this Revision 1.

Admittedly, this reduced contingency increases the risk that a study cost adjustment may be required in the future (if unforeseen complexities require additional work). On the other hand, overall reduced contingencies may be justified at this time, given that each task's outputs and estimated costs were reviewed once again for Revision 1.

### Costs of Work Tasks

#### Federal Contributions

Federal study costs (shown in **Appx. A**, column "Estimated Fed. Costs") are based on

estimated hourly labor rates (including overhead) of the individuals who are anticipated to perform the tasks, as well as the addition of miscellaneous costs for travel, contractors, printing, etc. The federal study cost total will be equal to 50% of the total feasibility study cost.

### **Non-Federal Contributions**

As shown in the columns “Estimated MSD Costs” and “Estimated In-Kind Costs”, the total non-federal contributions to this study are \$900,000 including \$ 655,754 cash and \$ 244,246 in-kind services. This amounts to 50 percent of the total study cost. of \$1,800,000.

As discussed previously, certain appropriate activities from the scope of services were selected by MSD to be performed as In-kind services. These are marked “InKind...” under the Resources ID column in Appx. A.

### **Cost Escalation Procedure**

In preparing the cost estimate, the study team considered the selected average hourly rates and contingencies sufficient to cover any cost escalation over an approximate 36-month study period. Federal fiscal years for this study begin on October 1 each calendar year. Consequently, the study is expected to span portions of three fiscal years: 2006, 2007, and 2008. Cost escalation may affect the final total study cost, especially if continuous Federal and Sponsor funding is interrupted (preventing timely completion of tasks). Accordingly, the task list (per Appendix A) will be evaluated regularly to ascertain whether schedules are being met and whether any adjustments are required to overall estimate.

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## STUDY QUALITY CONTROL

This Quality Control section was updated in mid-2006 (per PMP Revision #1) to include the standard-format Quality Control Plan (QCP) currently used for Louisville District studies, which conforms also to Engineering Division formats for QCPs.

### Customer Objectives and Project Outcomes

It is anticipated that successful completion of this project will produce the following outcomes:

- A significant reduction in flood damages within the upper Mill Creek basin (the study area).
- A flood damage reduction project that is within the financial capability of the Sponsor (MSD).
- A project acceptable to the Public.
- A project that incorporates good environmental design features and minimizes environmental impacts and, if possible, produces environmental benefits.

### Best Management Practices and Records-Keeping

The Project Manager or appropriate team members will regularly create or update certain reports/records which will be distributed to team leaders and be maintained in the study file:

#### **Minutes from Monthly Status Meetings**

The Project Manager will meet with the study team approximately once each month (while funds are actually available to continue studies) to discuss the status of the project and the progress of study tasks. Following the meeting, the Project Manager will prepare minutes of the meeting, including a description of the progress of each study task that is underway or about to be initiated. These minutes will document significant issues raised during the meetings, including proposed solutions, task completions, and actual Federal and non-Federal expenditures compared to budgeted expenditures.

## **Activities Status and Funds Management Report**

Prior to each team meeting, the Project Manager will update the scheduling data maintained by the Corps, and generate a report indicating activities' progress, and expenditures to-date, including a breakout of expenditures by funding source (Federal funds, Sponsor's cash, or Sponsor's In-Kind services). For example, this report may take the format of the activities list included herein as **Appendix A**.

## **Invoices for Sponsor's Cash Funds**

At appropriate times (such as when Federal appropriations are made or anticipated by the District), the Project Manager will submit a letter to the Sponsor requesting additional matching funds and the anticipated use of these funds (in accord with the study schedule per Appendix A). This "invoice" will also document study progress to-date, total study expenditures-to-date (by funding source), and the funding required at the time.

## **Quarterly Invoices of Sponsor's In-Kind Services**

Once every 3 months, the Sponsor will submit to the Project Manager any documentation of In-Kind work (labor, contracted services, or other products) accomplished by the Sponsor over the preceding quarter-year. In-kind work submitted for credit must be in accord with the current activities' list (per Appendix A) – must be one of the activities listed with Resource ID "In-Kind," must be within the budgeted (study estimate) limit for that In-Kind activity, and must be work directly related to the progress and purpose of this feasibility study.

The Project Manager will review these quarterly invoices promptly, and notify the Sponsor within 30 days if there is any dispute regarding In-Kind work services requested for credit. Then, assuming there are no disputes, the Project Manager will credit all approved In-Kind work within the Corps' CEFMS accounting system. (In-Kind expenditures credited to-date are shown in the next-to-last column of Appx. A, "Expensed .... In Kind".

## **Schedule and Cost Change Request**

Should the need arise for a major change to the PMP that will result in schedule or overall cost changes, the Schedule and Cost Change Report (SACCR) is the principal form that will be used. Any person working on the study who first recognizes a need for a significant change usually initiates the SACCR. These changes usually include requests to change the study scope, cost, or milestones. Changes to work orders will be negotiated with the initiator of the work order. The initiator of the SACCR provides the request to the Project Manager for approval of an impact assessment, evaluation of study impacts, and coordination with other members of the

study team. The Project Manager will coordinate with the local sponsor and the other non-federal contributors who will review and agree to changes proposed by the SACCR before it is implemented.

The Project Manager is authorized to revise project schedules that do not impact the major milestones. Approval from the District's Project Review Board, in consultation with the Sponsor and the full study team, is required for changes that extend major milestones or that involve increased study funding requirements.

## Quality Control Plan (QCP)

### 1. Purpose

This plan identifies all the quality control features to be used in completing the technical products and services, as described in paragraph 4 below and in Section 3 of the PMP.

### 2. Applicability

This plan applies to completion of all deliverables of technical products required to complete and secure approval of a interim feasibility report. Internal review and coordination by senior staff design "checkers" shall be performed prior to more formal quality control measures such as Independent Technical Review (ITR).

### 3. References

- a. ER 1110-1-12, Quality Management
- b. The LRL PMBP Manual "Study/Design Phase Management of QC/QA Processes for Technical Products & Services"

### 4. General Project Data

- a. **Type:** Civil Works feasibility study (may consider various Corps' water resources missions: flood-damage reduction, environmental restoration, water quality, recreation)
- b. **Location:** Mill Creek watershed (particularly upper Mill Creek – watershed draining into the "Mill Creek Cut-Off") western Jefferson Co., Ky.
- c. **Authorization:** Authority for the Metropolitan Region of Louisville, Kentucky, Mill Creek Study is contained in a resolution adopted on 5 May 1987 by the Committee on

Environment and Public Works of the United States Senate. See Section 1 of PMP for details. The Mill Creek study is one of several former or ongoing interim studies for which funds have been appropriated under this Metropolitan Region of Louisville authority.

d. **Project Description:** Feasibility Study as described in PMP Sections 2-3.

e. **Design/Study Criteria:** This study will be conducted in accordance with current Corps of Engineers criteria contained in Engineer Regulations, manuals, and other guidance. Specific guidance on conduct of feasibility studies is contained in ER 1105-2-100, the Planning Guidance Notebook, last revised in 2004. This and other Engineering Regulations (ERs) are available for download from

[www.usace.army.mil/inet/usace-docs/eng-regs/cecw.htm](http://www.usace.army.mil/inet/usace-docs/eng-regs/cecw.htm)

District CADD standards shall be used as the basis for production of feasibility plans' drawings.

f. **Specific Quality Requirements:**

- a. Coordination with Resources Agencies. Alternatives will be coordinated with the U.S. Fish & Wildlife Service and Kentucky Dept. of Fish & Wildlife Resources prior to issuance of Draft Feasibility Report. After issuance of the Draft, official comments from resources agencies will be gathered in accord with NEPA requirements.
- b. Coordination with SHPO. Alternatives will be coordinated with the Kentucky State Historical Preservation Officer (SHPO).
- c. ITR. Major or unique components of alternatives will be furnished to Independent Technical Review (ITR) team reviewers during alternatives' screening (Stages 1-2) by way of "on-board" review. Key ITR members will be present at the Formulation Scoping Meeting and at any In-Progress Review meetings with higher Corps' authority. An advanced draft Feasibility Report will be thoroughly reviewed by an Independent Technical Review (ITR) team prior to public release of the draft. (Details are provided below in paragraph 6 below.)

## 5. Design / Study Teams.

a. The **Project Delivery Team (PDT) and Technical Checker** list is enclosed in the PMP as Table 4.2.

b. **List of consultants and/or Centers of Expertise:** For the most part, none are required. All necessary planning and design expertise is located within the Corps of Engineers, Louisville District. However, much of the hydrologic modeling for this study will be provided as a product of work underway for the Sponsor by outside Engineers. Also, if the Kentucky SHPO requires a Phase 1 or more detailed evaluation of work sites to determine the extent of any cultural resources in considered work areas, a consultant may be hired as required to perform this work.

## 6. Independent Technical Review Team

a. **Independent Technical Review (ITR):** includes all engineering and specialty review, The ITR review team member list is enclosed as Exhibit B.

b. **List of external consultants and/or Centers of Expertise for Review:** not anticipated.

## 7. Review Process.

a. Products will be prepared using in-house forces. Quality Control shall be completed using Louisville District/Great Lakes and Ohio River Division authorized personnel and in accordance with this QCP

b. Study and design Quality Control shall be accomplished using the following review methods:

(1) **Monthly Team Meeting/Results Review (“On-Board” ITR).** Given the scope of this study, the study team will have meetings approximately once per month (when funding allows the team to be actively engaged) to which the ITR team members will be invited, especially when agendas involve the review of particular disciplines’ work. By having these regular meetings, the ITR will be able to advise the design team on potential problems. Once the team’s work on the feasibility study is completed, qualitative results (as compiled in the AFB package) will be submitted for review by the ITR team. Later, the full draft report will be submitted to the ITR for review. The draft AFB package as well as the draft report will be reviewed by the entire ITR team using the Corp’s “Dr. Checks” review software. Dr. Checks is an Internet-based database which allows all reviewers and team members to document reviewers’ comments, reply to comments, and to assess the overall status of the review at any time. The study team will work with the ITR team, using Dr. Checks, to resolve all comments. Following successful completion of the draft report’s ITR, the ITR team will certify completion of the review by signing a document as shown in **Appx. C**.

(2) **Within Section Review** – As the study progresses, each discipline’s team member will have their work checked within their section. This peer review will occur prior to the completed study being reviewed by the ITR team. Each team member will be responsible for having the design reviewed as the study progresses. It will be the job of the section reviewer to check study and / or design assumptions and calculations.

## 8. QC Budget

The budget for ITR activities for each discipline is listed in the overall Project Schedule / Budget (see PMP Appendix A). Funded ITR activities in the schedule have a “\$R” (for review) in the prefix of the Activity Name, and include “ITR” in the name of the activity.

## 9. Milestones and Review Schedule

See Table 7.2 at the end of this Section.

## **10. Designer Quality Evaluations.**

Various designer evaluations will be accomplished at the completion of the Feasibility Report. These will indicate to the design team the level of performance in executing the project design responsibility, which includes the final and total responsibility for assuring the correctness of design computations/modeling, and drawings.

## **11. Design Quality Improvement.**

Design review comments recurrent on several projects will be analyzed in accordance with the LRL Engineering Division Quality Procedures. Where possible, recurring problem areas will be evaluated for corrective action in accordance with the Corrective Action procedure. Frequently this will result in changes of design criteria, guide specifications, technical manuals, regulations, etc. If the recurring problem area cannot be corrected through these means, the subject will be documented and publicized for designers' and reviewers' use on future projects.

## **12. Records.**

Complete versions of the QCP, review meeting minutes, review dates, and copies of all annotated review comments shall be placed with project permanent files upon completion of the deliverables. Items indicated above shall be included.

## **13. Specific Review Pertinent to Civil Works Projects**

The Civil Works studies generally involve an incremental and iterative development of alternatives' features, beginning with a less detailed focus on initial designs/costs, and working towards detailed designs / costs for the Feasibility report. Product development shall be performed in accordance with published criteria and guidance.

Certain major milestone meetings (some optional) will be held during the Feasibility study (as documented elsewhere in this PMP). These meetings should include all pertinent study team members, designers, higher Corps authority, local Sponsor representatives, and ITR reviewers (depending on the agenda of the meeting). Such meetings provide a quality check of assumptions and calculations performed to-date, and include the following:

- (1) Formulation Scoping Meeting. Will include at a minimum team leaders, the Sponsor, LRD and Corps HQ. The purpose is to review the scope of the study and range of alternative plans and impacts, well before any detailed analysis is started.
- (2) In-Progress Review (IPR) Meetings (optional). Will include at a minimum team leaders, the Sponsor, LRD and possibly Corps HQ – meetings will be called on an on-needed basis, to assess progress to-date.

(3) Issues Resolution Conference (IRC), (optional). Will include at a minimum team leaders, the Sponsor, LRD and possibly Corps HQ. Will be called as needed to resolve any unusual policy issues or issues raised by certain team leaders (or by the Sponsor).

(4) Advanced Formulation Briefing (AFB). Is scheduled near the mid-point of Stage 3 studies, before the draft report (and draft EA) is completed. Provides higher Corps authority an opportunity to review likely study findings and to offer suggestions prior to submission of the public draft report. An AFB Guidance Memorandum will be issued by Corps HQ following the AFB – providing guidance to the team regarding Federal policy issues (if any) relevant to the study, and providing specific guidance (if any) regarding the time/sequence/requirements of later Washington Level Review and issue of the draft Feasibility Report.

(5) Washington-Level Review (WLR). Currently scheduled to take place concurrent with public review of the draft report. However, if the AFB Guidance Memorandum notes above particularly concerns during the AFB, the WLR may be scheduled prior to public issuance of the draft report. WLR generally involves one or more meetings with the “LRD Regional Integration Team” in Washington – the lead HQ reviewers for projects from this geographic area. Funds have been set aside for attendance by primary team leaders, Sponsor representatives, key ITR reviewers, and by District management. Near the end of this process, the Louisville District Engineer will formally present team findings to the WLR Board.

**TABLE 7.1**  
**INDEPENDENT TECHNICAL REVIEW TEAM**  
Metropolitan Louisville Metropolitan Region Study / Mill Creek Interim Feasibility Study  
Jefferson County, Kentucky

<b>Primary Area of Review Responsibility</b>	<b>Office Symbol</b>	<b>Unusual or Special Requirements Y / N</b>
ITR Leader	LRN-PM-PF Nashville	N
Civil / Site Engineering	LRL-ED-T	N
Cost Engineering	LRL-ED-C	N
Economics	LRC-PM-PL-F Chicago	N
Environmental and Cultural Resources	LRN-PM-P Nashville	N
Geotechnical	LRL-ED-TS	N
HTRW	LRL-ED-E	N
Hydraulics	LRL-ED-T-H	N
Plan Formulation	LRN-PM-PF Nashville	N
Real Estate	LRL-RE-C	N
Sponsor	MSD	N

## TABLE 7.2

### REVIEW MILESTONES

**Metropolitan Louisville Metropolitan Region Study / Mill Creek Interim Feasibility Study  
Jefferson County, Kentucky**

MILESTONE	DATE *	REVIEW METHOD
Initiate Feasibility Study:	2 Aug 2005	District Engineer signs FCSA; certified by District Counsel
Formulation Scoping Meeting following development of Initial Alternatives	January 2007	Meeting or Conference Call with Team, Sponsor, ITR, LRD, HQ
NEPA Scoping Meeting (during Stage1)	January 2007	Meeting with team, Sponsor, Environmental ITR lead, USF&W, KyF&W, KySHPO, and USEPS
IPR - Selection of Tentative Recommended Plan and (optional) Locally Preferred Plan at the end of Stage 2 optimization of alternatives	May 2007	Meeting or Conference Call with Team, Sponsor, ITR, LRD
ITR of quantitative results, mid-Stage 3 (designs, costs, benefits)	September 2007	ITR review of AFB documentation package
Alternative Formulation Briefing (AFB) mid-Stage 3	October 2007	AFB Package prepared 1 month before meeting, documenting tentative results. Meeting or Conference Call with Team, Sponsor, ITR, LRD, HQ
ITR of DRAFT Report (Stage 3)	December 2007	ITR of Main Rpt, EA, and all Appendices
Distribution of Draft for Public Comment and for Washington-Level Review:	December 2007	Review by Public and by Fed./ State / Local Agencies, including Resources Agencies
Complete most Washington-Level review coordination (Stage 4)	May 2008	Review of draft, and meetings as required (including Washington-area meetings)
District Engr testifies at WLR Board	May 2008	WLR Board meeting in Washington
Completion of Feasibility Study (Approval of Final DPR by MSC)	June 2008	Approval by MSC (Cincinnati)
<b>DESIGN / CONSTRUCTION PHASE (after completion of Feasibility Study)</b>		
Acquisition Strategy Meeting for PED:	to be determined	to be determined
General Design Conference (GDC):	“ “	“ “
Complete Feature Design Memorandum (DM) / Begin Review:	“ “	“ “
60% Plans & Specs Review:	“ “	“ “
Final Plans and Specs Review:	“ “	“ “
BCOE and ITR Certification/Ready to advertise	“ “	“ “

\* **NOTE:** All dates in this PMP assume that Federal appropriations will be made in FY07 to continue investigations, assuming approximate team work capability of \$400,000 Federal + \$400,000 Non-Federal (including In-Kind work) per year. If no FY07 funds are provided (which is the likely case as of August 1, 2006), all dates beyond December 2006 will slip approximately 9 months.

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## TABLE OF ACRONYMS

<b>AFB</b>	--Alternative Formulation Briefing
<b>COE</b>	--Corps of Engineers
<b>DEIS</b>	—Draft Environmental Impact Statement
<b>EA</b>	--Environmental Assessment
<b>ER</b>	--Engineer Regulation
<b>EIS</b>	---Environmental Impact Statement
<b>FEMA</b>	--Federal Emergency Management Agency
<b>GIS</b>	---Geographic Information System
<b>H&amp;H</b>	--Hydraulics and Hydrology
<b>HQUSACE</b>	--Headquarters, United States Army Corps of Engineers
<b>HTRW</b>	--Hazardous Toxic Radioactive Waste
<b>ITR</b>	--Independent Technical Review
<b>LRD</b>	--Great Lakes and Ohio River Division
<b>MCACES</b>	---Micro Computer Aided Cost Estimating System
<b>MSD</b>	--Metropolitan Sewer District
<b>NED</b>	--Net Economic Development
<b>O &amp; M</b>	--Operation and Maintenance
<b>OBS</b>	--Organizational Breakdown Structure
<b>OMRR&amp;R</b>	--Operations & Maintenance Repair, Rehabilitation & Replacement
<b>PRB</b>	--Project Review Board
<b>PMP</b>	--Project Study Plan
<b>QA</b>	--Quality Assurance
<b>QC</b>	—Quality Control
<b>RAM</b>	--Responsibility Assignment Matrix
<b>SOS</b>	--Scope of Studies
<b>USACE</b>	---United States Army Corps of Engineers
<b>USF&amp;W</b>	--United States Fish & Wildlife
<b>USFWS</b>	---United States Fish & Wildlife Service
<b>WBS</b>	—Work Breakdown Structure

# APPENDIX A

## STUDY ACTIVITIES, COST ESTIMATES, AND EXPENSES (through May 2006)

**Notes:** in the original PMP (June 2005), all tasks were coded with an Activity Name beginning with a “J” (following standard Corps’ codes for Feasibility Studies). In later revisions, the “J” prefix was dropped in the Activity Names, since it complicated P2 data maintenance.

Hence, an Activity Name beginning “AB...” (denoting Hydraulics and Hydrology studies) in this activities list is equivalent to “JBA...” in the original PMP.

**Regarding the Start and Finish Dates shown here:** all dates in this PMP assume that Federal appropriations will be made in FY07 to continue investigations, assuming approximate team work capability of \$400,000 Federal + \$400,000 Non-Federal (including In-Kind work) per year.

**However, if no FY07 funds are provided (which is the likely case as of August 1, 2006),** all dates beyond December 2006 will slip approximately 9 months. (Carry-over funds from FY06 will allow the study work to continue through the 1<sup>st</sup> Qtr. of FY 97 – to about Dec. 2006). Hence, the reader should add 9 months to any dates shown herein after Dec. 2006. (No attempt was made to change these figures for this publication – however, this Appx. A will be appropriately updated when new Federal appropriations become available. )

**4-page spreadsheet**  
(Activities' List and Costs)  
goes here

# **APPENDIX B**

## **FEASIBILITY COST SHARE AGREEMENT**

**2 August 2005**

AGREEMENT  
BETWEEN THE DEPARTMENT OF THE ARMY  
AND  
THE LOUISVILLE – JEFFERSON COUNTY (KY) METROPOLITAN SEWER DISTRICT  
FOR THE  
MILL CREEK (KY) FLOOD DAMAGE REDUCTION FEASIBILITY STUDY

THIS AGREEMENT is entered into this 2<sup>nd</sup> day, of August, 2005, by and between the Department of the Army (hereinafter the "Government"), represented by the District Engineer executing this Agreement, and the Louisville – Jefferson County, Kentucky Metropolitan Sewer District (hereinafter the "Sponsor"),

WITNESSETH, that

WHEREAS, the Congress has requested the U.S. Army Corps of Engineers to conduct studies for determining the advisability of providing additional improvements for flood damage reduction and allied purposes in the Metropolitan region of Louisville, Kentucky, with particular reference to existing and potential flooding problems in Pond Creek, Mill Creek, Beargrass Creek and Floyds Forks drainage basins pursuant to the resolution adopted on May 5, 1987 by the U.S. Senate Committee on Environment and Public Works; and

WHEREAS, the U.S. Army Corps of Engineers has conducted a reconnaissance study of flood damages within the Mill Creek Watershed located in Jefferson County, Kentucky pursuant to this authority, and has determined that further study in the nature of a "Feasibility Phase Study" (hereinafter the "Study") is required to fulfill the intent of the study authority and to assess the extent of the Federal interest in participating in a solution to the identified problem; and

WHEREAS, Section 105 of the Water Resources Development Act of 1986 (Public Law 99-662, as amended) specifies the cost sharing requirements applicable to the Study;

WHEREAS, the Sponsor has the authority and capability to furnish the cooperation hereinafter set forth and is willing to participate in study cost sharing and financing in accordance with the terms of this Agreement; and

WHEREAS, the Sponsor and the Government understand that entering into this Agreement in no way obligates either party to implement a project and that whether the Government supports a project authorization and budgets it for implementation depends upon, among other things, the outcome of the Study and whether the proposed solution is consistent with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and with the budget priorities of the Administration;

NOW THEREFORE, the parties agree as follows:

## ARTICLE I - DEFINITIONS

For the purposes of this Agreement:

- A. The term "Study Costs" shall mean all disbursements by the Government pursuant to this Agreement, from Federal appropriations or from funds made available to the Government by the Sponsor, and all negotiated costs of work performed by the Sponsor pursuant to this Agreement. Study Costs shall include, but not be limited to: labor charges; direct costs; overhead expenses; supervision and administration costs; the costs of participation in Study Management and Coordination in accordance with Article IV of this Agreement; the costs of contracts with third parties, including termination or suspension charges; and any termination or suspension costs (ordinarily defined as those costs necessary to terminate ongoing contracts or obligations and to properly safeguard the work already accomplished) associated with this Agreement.
- B. The term "estimated Study Costs" shall mean the estimated cost of performing the Study as of the effective date of this Agreement, as specified in Article III.A. of this Agreement.
- C. The term "excess Study Costs" shall mean Study Costs that exceed the estimated Study Costs and that do not result from mutual agreement of the parties, a change in Federal law that increases the cost of the Study, or a change in the scope of the Study requested by the Sponsor.
- D. The term "study period" shall mean the time period for conducting the Study, commencing with the release to the U.S. Army Corps of Engineers Louisville District of initial Federal feasibility funds following the execution of this Agreement and ending when the Assistant Secretary of the Army (Civil Works) submits the feasibility report to the Office of Management and Budget (OMB) for review for consistency with the policies and programs of the President.
- E. The term "PMP" shall mean the Project Management Plan, which is attached to this Agreement and which shall not be considered binding on either party and is subject to change by the Government, in consultation with the Sponsor.
- F. The term "negotiated costs" shall mean the costs of in-kind services to be provided by the Sponsor in accordance with the Project Management Plan (PMP).
- G. The term "fiscal year" shall mean one fiscal year of the Government. The Government fiscal year begins on October 1 and ends on September 30.

## ARTICLE II - OBLIGATIONS OF PARTIES

- A. The Government, using funds and in-kind services provided by the Sponsor and funds appropriated by the Congress of the United States, shall expeditiously prosecute and complete the Study, in accordance with the provisions of this Agreement and Federal laws, regulations, and policies.
- B. In accordance with this Article and Article III.A., III.B. and III.C. of this Agreement, the Sponsor shall contribute cash and in-kind services equal to fifty (50) percent of Study Costs other than excess Study Costs. The Sponsor may, consistent with applicable law and regulations,

contribute up to 25 percent of Study Costs through the provision of in-kind services. The in-kind services to be provided by the Sponsor, the estimated negotiated costs for those services, and the estimated schedule under which those services are to be provided are specified in the PMP. Negotiated costs shall be subject to an audit by the Government to determine reasonableness, allocability, and allowability.

C. The Sponsor shall pay a fifty (50) percent share of excess Study Costs in accordance with Article III.D. of this Agreement.

D. The Sponsor understands that the schedule of work may require the Sponsor to provide cash or in-kind services at a rate that may result in the Sponsor temporarily diverging from the obligations concerning cash and in-kind services specified in paragraph B. of this Article. Such temporary divergences shall be identified in the quarterly reports provided for in Article III.A. of this Agreement and shall not alter the obligations concerning costs and services specified in paragraph B. of this Article or the obligations concerning payment specified in Article III of this Agreement.

E. If, upon the award of any contract or the performance of any in-house work for the Study by the Government or the Sponsor, cumulative financial obligations of the Government and the Sponsor would result in excess Study Costs, the Government and the Sponsor agree to defer award of that and all subsequent contracts, and performance of that and all subsequent in-house work, for the Study until the Government and the Sponsor agree to proceed. Should the Government and the Sponsor require time to arrive at a decision, the Agreement will be suspended in accordance with Article X., for a period of not to exceed six months. In the event the Government and the Sponsor have not reached an agreement to proceed by the end of their 6 month period, the Agreement may be subject to termination in accordance with Article X.

F. No Federal funds may be used to meet the Sponsor's share of Study Costs unless the Federal granting agency verifies in writing that the expenditure of such funds is expressly authorized by statute.

G. The award and management of any contract with a third party in furtherance of this Agreement which obligates Federal appropriations shall be exclusively within the control of the Government. The award and management of any contract by the Sponsor with a third party in furtherance of this Agreement which obligates funds of the Sponsor and does not obligate Federal appropriations shall be exclusively within the control of the Sponsor, but shall be subject to applicable Federal laws and regulations.

### ARTICLE III - METHOD OF PAYMENT

A. The Government shall maintain current records of contributions provided by the parties, current projections of Study Costs, current projections of each party's share of Study Costs, and current projections of the amount of Study Costs that will result in excess Study Costs. At least quarterly, the Government shall provide the Sponsor a report setting forth this information. As of the effective date of this Agreement, estimated Study Costs are \$1,800,000 and the Sponsor's share of estimated Study Costs is \$900,000. In order to meet the Sponsor's cash payment requirements for its share of estimated Study Costs, the Sponsor must provide a cash contribution

currently estimated to be \$650,000.00. The dollar amounts set forth in this Article are based upon the Government's best estimates, which reflect the scope of the study described in the PMP, projected costs, price-level changes, and anticipated inflation. Such cost estimates are subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Sponsor.

B. The Sponsor shall provide its cash contribution required under Article II.B. of this Agreement in accordance with the following provisions:

1. For purposes of budget planning, the Government shall notify the Sponsor by October 1st of each year of the estimated funds that will be required from the Sponsor to meet the Sponsor's share of Study Costs for the upcoming fiscal year.

2. No later than 60 calendar days prior to the scheduled date for the Government's issuance of the solicitation for the first contract for the Study or for the Government's anticipated first significant in-house expenditure for the Study, the Government shall notify the Sponsor in writing of the funds the Government determines to be required from the Sponsor to meet its required share of Study Costs for the first fiscal year of the Study. No later than 30 calendar days thereafter, the Sponsor shall provide the Government the full amount of the required funds by delivering a check payable to "FAO, USAED, Louisville District" to the District Engineer.

3. For the second and subsequent fiscal years of the Study, the Government shall, no later than 60 calendar days prior to the beginning of the fiscal year, notify the Sponsor in writing of the funds the Government determines to be required from the Sponsor to meet its required share of Study Costs for that fiscal year, taking into account any temporary divergences identified under Article II.D of this Agreement. No later than 30 calendar days prior to the beginning of the fiscal year, the Sponsor shall make the full amount of the required funds available to the Government through the funding mechanism specified in paragraph B.2. of this Article.

4. The Government shall draw from the funds provided by the Sponsor such sums as the Government deems necessary to cover the Sponsor's share of contractual and in-house fiscal obligations attributable to the Study as they are incurred.

5. In the event the Government determines that the Sponsor must provide additional funds to meet its share of Study Costs, the Government shall so notify the Sponsor in writing. No later than 60 calendar days after receipt of such notice, the Sponsor shall make the full amount of the additional required funds available through the funding mechanism specified in paragraph B.2. of this Article.

C. Within ninety (90) days after the conclusion of the Study Period or termination of this Agreement, the Government shall conduct a final accounting of Study Costs, including disbursements by the Government of Federal funds, cash contributions by the Sponsor, the amount of any excess Study Costs, and credits for the negotiated costs of the Sponsor, and shall furnish the Sponsor with the results of this accounting. Within thirty (30) days thereafter, the Government, subject to the availability of funds, shall reimburse the Sponsor for the excess, if any, of cash contributions and credits given over its required share of Study Costs, other than excess Study Costs, or the Sponsor shall provide the Government any cash contributions required for the Sponsor to meet its required share of Study Costs other than excess Study Costs.

D. The Sponsor shall provide its cash contribution for excess Study Costs as required under Article II.C. of this Agreement by delivering a check payable to "FAO, USAED, Louisville District" to the District Engineer as follows:

1. After the project that is the subject of this Study has been authorized for construction, no later than the date on which a Project Cooperation Agreement is entered into for the project; or

2. In the event the project that is the subject of this Study is not authorized for construction by a date that is no later than 5 years of the date of the final report of the Chief of Engineers concerning the project, or by a date that is no later than 2 years after the date of the termination of the study, the Sponsor shall pay its share of excess costs on that date (5 years after the date of the Chief of Engineers or 2 year after the date of the termination of the study).

#### ARTICLE IV - STUDY MANAGEMENT AND COORDINATION

A. To provide for consistent and effective communication, the Sponsor and the Government shall appoint named senior representatives to an Executive Committee. Thereafter, the Executive Committee shall meet regularly until the end of the Study Period.

B. Until the end of the Study Period, the Executive Committee shall generally oversee the Study consistently with the PMP.

C. The Executive Committee may make recommendations that it deems warranted to the District Engineer on matters that it oversees, including suggestions to avoid potential sources of dispute. The Government in good faith shall consider such recommendations. The Government has the discretion to accept, reject, or modify the Executive Committee's recommendations.

D. The Executive Committee shall appoint representatives to serve on a Study Management Team. The Study Management Team shall keep the Executive Committee informed of the progress of the Study and of significant pending issues and actions, and shall prepare periodic reports on the progress of all work items identified in the PMP.

E. The costs of participation in the Executive Committee (including the cost to serve on the Study Management Team) shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

#### ARTICLE V - DISPUTES

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. The parties shall each pay 50 percent of any costs for the services provided by such a third party as such costs are incurred.

Such costs shall not be included in Study Costs. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

#### ARTICLE VI - MAINTENANCE OF RECORDS

A. Within 60 days of the effective date of this Agreement, the Government and the Sponsor shall develop procedures for keeping books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement to the extent and in such detail as will properly reflect total Study Costs. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to state and local governments at 32 C.F.R. Section 33.20. The Government and the Sponsor shall maintain such books, records, documents, and other evidence in accordance with these procedures for a minimum of three years after completion of the Study and resolution of all relevant claims arising therefrom. To the extent permitted under applicable Federal laws and regulations, the Government and the Sponsor shall each allow the other to inspect such books, documents, records, and other evidence.

B. In accordance with 31 U.S.C. Section 7503, the Government may conduct audits in addition to any audit that the Sponsor is required to conduct under the Single Audit Act of 1984, 31 U.S.C. Sections 7501-7507. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits shall be included in total Study Costs and shared in accordance with the provisions of this Agreement.

#### ARTICLE VII - RELATIONSHIP OF PARTIES

The Government and the Sponsor act in independent capacities in the performance of their respective rights and obligations under this Agreement, and neither is to be considered the officer, agent, or employee of the other.

#### ARTICLE VIII - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, nor any resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

#### ARTICLE IX - FEDERAL AND STATE LAWS

In the exercise of the Sponsor's rights and obligations under this Agreement, the Sponsor agrees to comply with all applicable Federal and State laws and regulations, including Section 601 of Title VI of the Civil Rights Act of 1964 (Public Law 88-352) and Department of Defense Directive 5500.11 issued pursuant thereto and published in 32 C.F.R. Part 195, as well as Army Regulations 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".


## ARTICLE X - TERMINATION OR SUSPENSION

A. This Agreement shall terminate at the conclusion of the Study Period, and neither the Government nor the Sponsor shall have any further obligations hereunder, except as provided in Article III.C.; provided, that prior to such time and upon thirty (30) days written notice, either party may terminate or suspend this Agreement. In addition, the Government shall terminate this Agreement immediately upon any failure of the parties to agree to extend the study under Article II.E. of this agreement, or upon the failure of the sponsor to fulfill its obligation under Article III. of this Agreement. In the event that either party elects to terminate this Agreement, both parties shall conclude their activities relating to the Study and proceed to a final accounting in accordance with Article III.C. and III.D. of this Agreement. Upon termination of this Agreement, all data and information generated as part of the Study shall be made available to both parties.


B. Any termination of this Agreement shall not relieve the parties of liability for any obligations previously incurred, including the costs of closing out or transferring any existing contracts.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the District Engineer for the U.S. Army Corps of Engineers, Louisville District.

DEPARTMENT OF THE ARMY

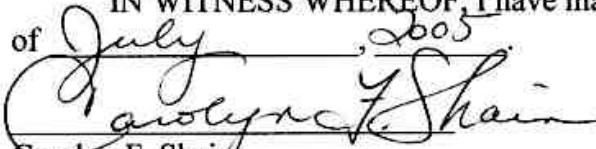
BY  8/2/05  
Raymond G. Midliff  
Colonel, Corps of Engineers  
Commander and District Engineer

METROPOLITAN SEWER DISTRICT

BY  7/29/05  
H. J. Schardein, Jr.  
Executive Director  
Louisville and Jefferson County  
Metropolitan Sewer District

## CERTIFICATE OF AUTHORITY

I, Carolyn F. Shain, do hereby certify that I am the principal legal officer of the Louisville – Jefferson County, Kentucky Metropolitan Sewer District, that the Louisville – Jefferson County, Kentucky Metropolitan Sewer District is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the Louisville – Jefferson County, Kentucky Metropolitan Sewer District in connection with the Mill Creek Flood Damage Reduction Feasibility Study, Metropolitan Louisville – Jefferson County, Kentucky, and that the persons who have executed this Agreement on behalf of Louisville – Jefferson County, Kentucky Metropolitan Sewer District have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 28<sup>th</sup> day of July, 2005.  
  
Carolyn F. Shain  
Legal Counsel

## CERTIFICATION REGARDING LOBBYING

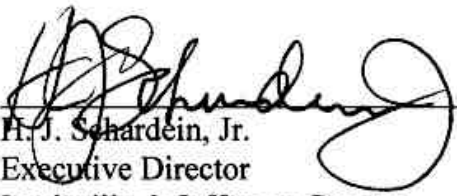
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

  
H. J. Schardein, Jr.  
Executive Director  
Louisville & Jefferson County  
Metropolitan Sewer District

DATE: 7/29/05

**CERTIFICATION OF LEGAL REVIEW**

The Feasibility Cost Sharing Agreement between the Department of the Army and the Louisville-Jefferson County, KY Metropolitan Sewer District for the Mill Creek, KY Flood Damage Reduction Feasibility Study has been fully reviewed by the Office of Counsel, Louisville District, is consistent with the approved model agreement, and is approved as legally sufficient.

R. Dale Holmes

R. Dale Holmes, Attorney  
District Counsel

6/29/05

Date

# **APPENDIX C**

## **SAMPLE ITR and LEGAL-REVIEW CERTIFICATION RECORD**

**to be signed by all ITR team members following  
successful review of the draft report**

# COMPLETION OF INDEPENDENT TECHNICAL REVIEW

## Metro Louisville – Mill Creek, KY Feasibility Study DRAFT Interim Feasibility Report

The District has completed the Metro Louisville – Mill Creek, Kentucky, Feasibility Study DRAFT Interim Report. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. The study was accomplished by a team from the Louisville District together with the local cost-sharing sponsor, the Metropolitan Sewer District. The Independent Technical Review (ITR) was accomplished by an ITR team consisting of Corps' subject-matter experts as well as a local-sponsor reviewer.

(Signatures)

\_\_\_\_\_  
Study Team Leaders

\_\_\_\_\_  
Date

(Signatures)

\_\_\_\_\_  
Independent Technical Review Team Leaders

\_\_\_\_\_  
Date

(NOTE: *see Section 4 for list of Study Team Leaders List, and Section 7 for list of ITR leaders.*)

# CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

*(Describe the major technical concerns, possible impact, and resolution)*

As noted above, all concerns resulting from ITR of the project have been considered.

<div>(Signature)</div> <div>Chief, Planning, Programs and Project Management Division</div>	<div></div> <div>Date</div>
<div>(Signature)</div> <div>Chief, Engineering Division</div>	<div></div> <div>Date</div>
<div>(Signature)</div> <div>Chief, Construction Division</div>	<div></div> <div>Date</div>
<div>(Signature)</div> <div>Chief, Real Estate Division</div>	<div></div> <div>Date</div>

## CERTIFICATION OF LEGAL REVIEW

The Metro Louisville-Mill Creek, Kentucky, Feasibility Study, DRAFT Interim Report, including all associated documents required by the National Environmental Policy Act, has been fully reviewed by the Office of Counsel, Louisville District, and is approved as legally sufficient.

\_\_\_\_\_  
(Signature)

District Counsel

\_\_\_\_\_  
Date